TRANSACTIONS

OF THE

Pennsylvania Horticultural Society,

FOR

THE YEAR 1865.

INSTITUTED 1827.

INCORPORATED 1831.

STATED MEETINGS on the third Tuesday evening of each month.
ESSAYS read on the first Tuesday evening of each month, at

HORTICULTURAL HALL,

S. W. corner of Broad and Walnut Streets.

PHILADELPHIA:
PRINTED AT THE GARDENER'S MONTHLY OFFICE, 23 NORTH SIXTH STREET.
1866.

THE

PENNSYLVANIA HORTICULTURAL SOCIETY.

Officers and Standing Committees for the Year 1865.

D. RODNEY KING, President.

JAMES DUNDAS,
M. W. BALDWIN,
CALEB COPE,
ROBERT BUIST,
} Vice Presidents.

THOMAS MEEHAN, Corresponding Secretary.

A. W. HARRISON, Recording Secretary.

HENRY A. DREER, Treasurer.

THOMAS P. JAMES, Professor of Botany.

JAMES C. BOOTH, Professor of Horticultural Chemistry.

S. S. RATHVON, Professor of Entomology.

Finance.

W. L. Schaffer,
T. P. James,
R. M. Marshall.

Library.

A. W. Harrison,
T. P. James,
R. Kilvington,
Thomas Evans,
J. D. Wagner.

Establishing Premiums.

Fairman Rogers,
S. S. Price,
J. E. Mitchell,
Charles Harmar,
R. Kilvington.

Plants and Flowers.

S. S. Price,
James Ritchie,
George W. Earl,
P. Mackenzie,
R. Scott.

Fruits.

J. E. Mitchell,
S. W. Noble,
C. P. Hayes,
W. L. Schaffer,
E. Satterthwait.

Vegetables.

C. Harmar,
I. C. Price,
J. McGowan,
W. Hacker,
W. Joyce.

Establishing Names of Fruits.

R. Buist,
R. Cornelius,
W. Parry,
S. W. Noble,
W. Hacker.

Publication.

A. W. Harrison,
H. A. Dreer,
T. Meehan.

Distribution of Seeds.

J. McGowan,
T. Evans,
E. R. Hibbert.

Botany.

T. P. James,
R. Kilvington,
T. Meehan,
J. Darrach, M. D.,
J. Sherwood.

Horticultural Chemistry.

J. C. Booth,
W. H. Uhler, M.D.,
G. H. Burgin, M.D.,
G. W. Fahnestock,
Charles Ellis.

Entomology.

S. S. Rathvon,
William Saunders,
John Cassin,
C. C. Cresson,
William Hobson.

AUTUMNAL EXHIBITION.

S. S. Price, Chairman,
G. W. Earl,
W. Camac,
H. A. Dreer,
D Fergusson,
C H. Miller,
Caleb Cope,
Robert Buist,
Fairman Rogers,
T. P. James,
G. H. Burgin, M.D.,
H. B. Blanchard,
Isaac Barton,
F. O'Keefe,
D. McQueen,
E. R. Hibbert,
W. L. Schaffer,
R. M. Marshall,
J. Ritchie.
P. Mackenzie,
R. Scott,
R. Kilvington,
L. S. Pepper,
Louis Jack,
T. C. Percival,
John Pollock,
J. E. Mitchell,
S. W. Noble,
C. P. Hayes,
E. Satterthwait,
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ADDRESS

OF

D. RODNEY KING, Esq.,

PRESIDENT OF THE

PENNSYLVANIA HORTICULTURAL SOCIETY

JANUARY 17TH, 1865.

Ladies and Gentlemen of the Pennsylvania Horticultural Society:

IN thanking you, as I do most sincerely, for the honor you have conferred on me, in selecting me to preside over this time-honored Society, allow me to say, without affectation, that I accept the position with great reluctance and distrust of my own abilities to properly discharge the duties that devolve upon me. I therefore claim your indulgence for any errors I may commit, and beg you to attribute them more to a want of experience than to any want of interest in a Society to which I have belonged for more than twenty years, and in whose welfare I have always felt the liveliest interest.

But although conscious of my inexperience, yet I feel it my duty to offer a few suggestions that, in my opinion, may add somewhat to the usefulness of the Society in its future operations. And first, I would urge most respectfully on the Chairmen of the various committees, particularly those on Plants and Flowers, Fruits and Vegetables, the importance of making out their reports with more fullness and minuteness. The mere fact that a certain person was awarded a certain premium for a certain article exhibited, possesses but little interest to the public at large, unless accompanied by a report stating wherein the excellence *consisted*, and how this excellence was *attained*. In this way much useful information might be disseminated, and the exhibitor receive full credit for his skill. A comparison of the reports of the various committees of this Society with those of the Massachusetts Horticultural Society will demonstrate the truth of this remark.

I am aware that, until within two or three years past, the rules of the Society required the Reports of the committees to be submitted to the meeting of the Society the same evening that the awards of premiums were made, and this, of course, precluded the possibility of going much

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into detail, but under the present regulations the chairmen have an entire week to make out their reports, and I hope they will make some sacrifice of time, in order to carry out fully the intention of the Society, which is, in the language of its Act of Incorporation, "to improve the growth of vegetables, plants, trees, fruits and flowers." The importance of at least *noticing* every article exhibited, no matter how humble its pretensions, cannot be too strongly insisted on. Nothing is more discouraging to contributors, or better calculated to diminish the number of exhibitors, than to be passed over in silence, and that too when they have been at considerable pains, and perhaps expense, in placing their contributions before the Society.

These remarks are prompted by no mere spirit of censoriousness, but from a sincere desire that, in every department, this Society shall be considered a model.

In this connection I cannot forbear to express my high appreciation of the importance of the monthly essays and discussions. Through this medium our members and the public generally have had the benefit of the practical experience of many of our most skillful and scientific cultivators. The discussions have have been, considering their conversational or colloquial character, most admirably reported by the indefatigable exertions of our efficient Recording Secretary, and through the kindness of the Editor of the *Gardeners Monthly*, have been spread before the public, and to both these gentlemen our thanks are most justly due.

The essays and discussions for the ensuing year have been selected with a due regard to variety and utility, and among the essayists will be found some of our most scientific as well as practical minds, not only of this city and vicinity, but from other parts of the country, and it is hoped that the members will testify, by their attendance and participation in the discussions, an increased interest in this part of our labors.

It has long been a subject of regret, that in a Society formed partly, if not principally, to promote taste and elegance in garden and floral decorations, the refined taste of the ladies has not been more frequently employed. At all of our annual exhibitions, and in the Horticultural Department of the late Fair for the Sanitary Commission, the services rendered by the wives, sisters and daughters of our members were most invaluable, and they would no doubt be willing to aid still further in advancing the noble objects of the Society, could we devise any means for the purpose. It might be worthy of consideration whether the wives of our members should not be, by a by-law, admitted to all the benefits of membership, except the right of voting and of holding office.

Another mode of extending the influence of the Society, and one which has, of late, fallen into almost entire disuse, is the practice of conferring honorary memberships on persons who have rendered any important services to the Society, or who have distinguished themselves in advancing the cause of horticulture. Our list of honorary members comprises many of the great and shining lights in the horticultural and botanical world, but yet we miss the names of others, quite as distinguished and perhaps better entitled to that honor. On this list is the name of the Duke of Devonshire, the princely patron of horticulture in England, and the owner

of Chatsworth; and I am informed that his certificate of membership in this Society, occupies a conspicuous place on his library walls.

Another feature that might be introduced with much advantage, and one which already exists in the Illinois State Horticultural Society, and in the Royal Horticultural Society of England, and perhaps in some others, is the formation of local committees, whose duties are to solicit contributions for the annual and monthly exhibitions, to obtain new members, and to superintend such exhibitions as the Society may decide to hold in any particular locality of the city or State. Such committees, located in all the great horticultural centres of the State, as for instance in Reading, Harrisburg, Lancaster, Easton, Pottsville, Norristown, Lebanon, Bethlehem and even Pittsburg, would prove importaut auxiliaries in our labors.

You will recollect that the title of this society is not the *Philadelphia* but the *Pennsylvania* Horticultural Society, aud there is no reason why our operations should not extend throughout the State, in the same way that the State Agricultural Society prosecutes *its* labors, should we deem it desirable to do so. But even if our field of operations should be limited to the city alone, Germantown, West Philadelphia, Frankford, &c., would properly be embraced within it. I would therefore recommend you to authorize the appointment of one or two committees of this kind by way of beginning, say one in Germantown and one in West Philadelphia, both of these localities being in the centre of many of our fiuest country country seats, gardens and green-houses.

In several of our Horticultural Societies a committee on Ornamental Gardening is annually appointed whose duties are to visit and report on the condition of the gardeus, grounds, vineries aad green-houses, attached to country seats in the vicinity, and to award premiums for neatness, attractiveness, economy and productiveness. A committee of this kind might be of great service, particularly to our amateurs, iu furnishing them with useful hints, in laying out, planting and decorating their grounds. As a proof of the utility of a committee of this kind, I will lay before you an extract from a report, submitted by one of them to a neighboring Horticultural Society:

"The Committee cannot close their report without expressing their high approval of this portion of the Society's labors. A spur and new life has been given to horticulture, aud a laudable ambition and emulation encouraged. We are happy to believe that the pleasure and satisfaction of these visits have been mutual. Few persons are without the desire for praise or approval, which it is always a satisfaction to receive from those, considered best qualified to judge, and having official position."

The awarding of liberal premiums, and a careful inspection, when invited, of the numerous well-kept gardens dotted over our State, may be justly considered a good substitute for an experimental garden, and is perhaps the best method of expending our funds.

There are some other suggestions that I would desire to make, but my time will only allow me to name them, such as the establishing under the auspices of the Society, of an annual public sale of plants, flowers, and nursery stock; an effort to obtain from the city authorities the grant of some suitable location for a Flower Market; a petition to the City Councils from

this Society, to prohibit by ordinance the planting of certain kinds of trees known to be infested with worms; the formation, under the auspices of the Society, of a subscription club, for the purpose of sending out a botanical collector, &c.

But I reserve for the last a matter which, in my opinion, is of far more importance to the future welfare of the Society than any I have yet named. I allude to the building of a hall, of ample size, to supply all the requirements of the Society. Our past experience affords ample proof of the wisdom of those who advocated the leasing of the present hall. Previous to this we were without a home, and were compelled to pay for the use of a room, scarcely as well adapted to our wants as this, for eight nights only in the year, the sum of four hundred dollars, ($400,) while by reference to the Treasurer's Accounts for the last year, you will find that this hall has yielded to the Society a revenue over and above the rent, thus effecting a great saving, and furnishing us with a home that we could at least call our own for the time.

With such encouragements in the past, and with the noble example afforded us recently by our sister society of Massachusetts, in the erection of a large and magnificent granite building, at a cost of over $200.000, the *third* hall be it remembered which has been erected by that enterprising and spirited association,—I say with such encouragements and incentives to action, it seems to be not only our duty but our interest to at least afford our members and the community generally, an opportunity of contributing to so excellent an object. It may be objected by some, that the times are not propitious to an undertaking of this kind, and that the subject should not be mooted until the conclusion of the war; but to this I answer, that although many of the commercial interests of the city have suffered severely by the war, yet the mining, manufacturing and agricultural interests were never, perhaps, in a more prosperous condition. The three great products of our State, Coal, Iron, and Petroleum, are now pouring into the lap of our beautiful city an amount of wealth far surpassing that of California, and it only requires a vigorous and determined effort on our part, first to interest the community in the matter, and then we may feel confident that the means will be forthcoming. For our further encouragement, I will state that a movement of a similar kind has been but quite recently undertaken by the Franklin Institute in this city, and that it has already, and with but little effort, resulted in the collection of the handsome sum of over $25.000, which sum they expect will be largely increased by further exertion. With such examples all about us, let us not fold our hands in supineness and inactivity, but let us emulate the energy and enterprise of our predecessors in this Society, by the result of whose labors, it is not too much to say, the Society has been, for several years past, in a great measure sustained.

I now leave the subject in your hands with the hope that we will not adjourn without at least taking the initiatory steps towards carrying out the design, either by the appointment of a committee, or in any other way that your wisdom may suggest. The present Act of Incorporation prohibits the holding of Real Estate, the clear value of which shall exceed the sum of twenty thousand dollars, ($20.000,) and in case the Society

should decide to proceed in the matter, further legislation will be necessary, and might be procured during the present session.

The present condition of the Society compares very favorably with that of any previous period of its existence. The present number of annual members is about 417, and 131 life members; total, 548. This gratifying condition of the Society may be attributed in a great degree to our Annual Exhibitions. The Grand Exhibition in 1863, at the Academy of Music, although resulting in the apparent loss of three hundred dollars, ($300,) added largely to our number of annual members, and in this way the Society was in the end benefited. This should encourage us to further enterprises of the same kind. The committee on establishing premiums will report this evening a liberal schedule of premiums for the annual exhibition in October next, which I hope will receive your approval.

And now, gentlemen, let us enter upon our year of labor with renewed energy, and a determination to do all in our power to advance the interests of the Society, and to promote the cause of rural art and taste. The field of labor before us is ample in extent, and comparatively unexplored. Our advance in this department of knowledge has hardly kept pace with that in other branches of science.

In conclusion, allow me to impress on you the importance of doing all in your power to promote and preserve harmony and good feeling in the Society. Horticulture is eminently a peaceful science, and its votaries should never, by using personalities in debate, and by imputing improper motives, risk the loss of this peaceful reputation. It will be my endeavor, to the utmost of my ability, to enforce the observance of all parliamentary rules, for on this depends, in a great measure, the order and decorum of our meetings.

TRANSACTIONS FOR 1865.

STATED MEETING, JANUARY 10.

REPORT OF THE COMMITTEE ON PLANTS AND FLOWERS.

For the best general display of Plants, to E. R. Hibbert, gardener to F. Rogers.

For the best Basket of Cut Flowers, to D. McQueen, gardener to Joshua Longstreth.

For the best Hand Bouquet, to F. O'Keefe, gardener to Joseph Harrison.

For the best Hanging Basket, to E. R. Hibbert, gardener to F. Rogers.

They have also awarded a special premium of $1 to Jacob Huster, gardener to E. Forrest, for a handsome collection of Primulas, and another of $2 to John Pollock, gardener to James Dundas, for plants of Cypripedium insignis and Cypripedium venustum. They also notice with pleasure a handsome Bouquet from a new contributor, Jacob Huster.

REPORT OF THE COMMITTEE ON VEGETABLES.

For the best Celery, 6 stalks, to T. Meghran, gardener to Owen Jones.

For the best Lettuce, 6 heads, to George Huster, gardener to Alexander Cummings. And they recommend a special premium of $1 to George Huster, for early Radishes.

Mr. Mitchell presented, on behalf of the Royal Horticultural Society of London, complete copies of their proceedings since 1859, received through J. H. Dillon, Esq., of London, who, at the same time, transmitted the following communication :

ROYAL HORTICULTURAL SOCIETY,
South Kensington, W., May 9th, 1864.

"DEAR SIR :

"The Council have authorized the exchange with the Pennsylvania Horticultural Society, which you wished. I have directed a copy of our 'Proceedings' (with the exception of a few numbers which are out of print) to be sent you.

If you will specify any grafts you would wish, we shall endeavor to send them, also models ; but it is, I am afraid, too late to send grafts this

spring. It must stand till next autumn or spring. Any thing you want, which we have, will be gladly shared with you. I am the proper person to apply to." Yours truly,

ANDREW MURRAY.

"J. H. DILLON, ESQ:

"Please let me know where to send the proceedings in future; to you, or where?"

Mr. Mitchell then offered the following, which was unanimously adopted:

"*Resolved*, That the thanks of this Society are due, and hereby tendered, to the Royal Horticultural Society of London, for a copy of the proceedings since 1859, sent through the kindness of Mr. Dillon, and beg leave to offer in return a complete set of the Proceedings of the American Pomological Society."

STATED MEETING, FEBRUARY 21.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS.

For the best Table Design, to D. McQueen, gardener to J. Longstreth.

For the best General Display of Plants, to D. McQueen, gardener to J. Longstreth.

For the best Basket of Cut Flowers, to F. O'Keefe, gardener to J. Harrison.

For the best pair of Hand Bouquets, to F. O'Keefe, gardener to J. Harrison.

For the best Hanging Basket, to D. McQueen, gardener to J Longstreth.

For the best Camellias, 6 Cut Specimens, to P. Mackenzie & Son.

For the best Anæctochilus, 6 pots, F. O'Keefe, gardener to J. Harrison.

Your Committee ask your approval of a premium of $3 for a beautiful wreath of Cut Flowers, to Walter Bailey, gardener to D. Rodney King. There is also exhibited by Walter Bailey a chaste and beautiful design of Cut Flowers, which the exhibitor did not enter for competition, which your Committee very much admired. Also a collection of 35 Cut Camellia Flowers from P. Mackenzie & Son, much admired.

REPORT OF THE COMMITTEE ON VEGETABLES.

$1 to J. Huster, gardener to Edwin Forrest, for two bunches of Radishes, shown February 14th.

The Committee also award a special premium of $5 for fine specimens of Tomatoes, Lettuce and Cucumbers, shown February 21st, 1865, by W. J. Young, gardener to Stephen Morris.

TREASURER'S REPORT.

PHILADELPHIA, JANUARY 17TH, 1865.

Henry A. Dreer in account with Pennsylvania Horticultural Society.

1864. DR.

July 18th, To Balance	$588.48	
" Contributions of Members	49.25	
" Rent of Hall	180.00	
" Int. on U. S. Bonds	162.66	
" Prem. on Gold	222.31	
" Int. on Bennett's Mortgage	66.00	
" " Smith's "	120.00	
" Mrs. Brooks, Gas	48.36	
" Francis Bell, late Collector by W. L. Schaffer	100.00	
		$1537.06

CR.

By 6 Month's Rent	$250.00	
" Salary of Secretary	175 00	
" Premiums	212.00	
" Gas	70.12	
" Printing and Sundries	48.19	
" Janitress	65.50	
" Insurance	42.50	
" Picture Frame	5.50	
" Hovey's Magazine	4.00	
" Moss & Co's Seal Press	5.00	
Balance	$659.25	
		$1537.06
1865, January 17, To Balance		659.25

Examined and Compared with vouchers and found correct, February 3d, 1865.

W. L. SCHAFFER,
RICHARD M. MARSHALL, } Finance Committee.
THOS. P. JAMES.

The investments of the Society are now as follows:

United States Loan		$4000
1 Mortgage	$4000	
1 "	2200	6200
1 Bond of the City of Pittsburg, worth about $800		800
		$11,000

W. L. SCHAFFER,
THOS. P. JAMES.

STATED MEETING, MARCH 21.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS.

For the best Table Design, to D. McQueen.

For the best Hand Bouquets, to F. O'Keefe, gardener to J. Harrison.

For the best Hanging Basket, to D. McQueen.

Collection of 12 Plants in Bloom, to E. R. Hibbert, gardener to F. Rogers.

Collection of 6 Plants in Bloom, to D. McQueen.

Camellias, 6 Cut Flowers, to P. Mackenzie & Son.

Camellias, Collection, to P. Mackenzie & Son.

Azaleas, 6 Plants, 6 Varieties, to E. R. Hibbert, gardener to F. Rogers.

Azaleas, single specimen, to D. McQueen.

They also recommend the following special premiums:

Auriculas, 12 specimens, $1 to T. Mechan.

For a fine display of Plants in Bloom, $3 to P. Mackenzie & Son.

For a fine display of Plants in Bloom, and Variegated Foliage Plants, $2 to E. R. Hibbert, gardener to F. Rogers.

For a specimen of Selaginella Lyalli, exhibited for the first time, $1 to E. R. Hibbert, gardener to F. Rogers.

Your Committee respectfully calls your attention to an interesting indigenous fern, propagated from a specimen detected three years ago by Mr. Robinson Scott, on the banks of the Schuylkill, believed to be a new species allied to Asplenium Ebeneum, to which a special premium of $2 is awarded.

REPORT OF THE COMMITTEE ON VEGETABLES.

To George Huster, gardener to A. Cummings, for best Six Heads Lettuce, the only variety shown at this meeting.

STATED MEETING, APRIL 18.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS.

The Committee recommend that the following premiums be awarded for specimens exhibited January 10. The regular evening for display was January 17, but owing to a proper notice not having been given to members of the change from the second Tuesday in the month many articles were exhibited, and as no provision was made for premiums in the schedule, your Committee deem it but justice that special awards should be made for the occasion. They, therefore, recommend the following premiums to be awarded:

For the best 6 Pots Anæctochilus, to F. O'Keefe, gardener to J. Harrison.

For the best pair Hand Bouquets, to F. O'Keefe, gardener to J. Harrison.

For the best Hanging Basket, to F. O'Keefe, gardener to J. Harrison.

For the best Table Design, to T. Meghran, gardener to O. Jones.

For the best Table Design, $1 to F. O'Keefe, gardener to J. Harrison.

6 Plants Cineraria, specimen premium $1 to George Huster, gardener to A. Cummings.

They also award the following premiums for this evening:

Best Table Design, to D. McQueen, gardener to J. Longstreth.
" Basket of Cut Flowers " " " "
" Parlor Flower Stand, " " " "
" Hand Bouquet, " " " "
" Hanging Basket, to E. R. Hibbert, gardener to F. Rogers.
" Collection 12 Plants, not over 10-inch pots, to E. R. Hibbert, gardener to F. Rogers.
" Collection 12 Plants, not over 10-inch pots, D. McQueen, gardener to J. Longstreth.
" 6 Specimens Ferns, to E. R. Hibbert, gardener to F. Rogers.
" 6 " Lycopodium, " " " "
" 6 " Cinerarias, " " " "
" 6 " Marantas, " " " "
" 6 " Dracœnas, " " " "
" 6 " Pansies, to T. Meehan.

And have awarded the following special premiums:

For two finely grown specimens of Rhyncospermum jasminoides, to D. McQueen, $2.

For Ferns, Polypodium cambricum, and Scolopendium cristatum, to T. Meehan, $1.

Collection of Plants, to E. R. Hibbert, gardener to F. Rogers, $2.

We also recommend that the following special premium be awarded to D. Robertson, gardener to Mr. Baird, who was properly ruled out as a competitor, by being behind time in tabling his plants, but being a new exhibitor, (this being his first appearance,) and his plants being all handsome specimens, we consider his case a different one from old contributors, and would suggest that his tardiness be overlooked. Special premium for Collection of Plants, $3.

Also for Dracœna marginata, Croton cascarilla variegata, Brexia chrysophylla, to W. Sutherland, gardener to B. Bullock.

The Table Design was a very handsome and novel arrangement, but in our opinion a little too stiff; the arrangement of the flowers was in most excellent taste, and only required some small drooping flowers to make it perfect. The Basket of Cut Flowers was also most tastefully arranged.

The Parlor Flower Stand, by the same exhibitor, displayed his usual good taste, not only in the arrangement of the plants and flowers of which it was composed, but in the rustic stand in which they were arranged, and we hope he may be encouraged to make further efforts in the same direction.

The Collection of 12 Plants, together with Ferns, Lycopodiums, Marantas, Dracœnas, are particularly worthy of notice, and reflect great credit opon the grower, the Marantas and Dracœnas being splendid specimens.

We also desire to call attention to the new plants exhibited for the first time, Viz:

Dracœna marginata, Croton cascarilla variegata, Brexia chrysophylla,

and two new ferns, Polypodium cambricum and Scolopendium cristatum.

Before closing our report we beg leave to call the attention of the Society to the imperfect manner in which collections of plants are ofttimes numbered and arranged, and would suggest that exhibitors be more particular, thereby saving both trouble and annoyance. Also that more attention be paid to having plants properly labelled and placed on the tables before the time allowed by the schedule.

REPORT OF THE COMMITTEE ON VEGETABLES.

A special premium of $1 for 6 heads of Lettuce, to G. Huster, gardener to E. Bouvier. Also a special premium of $1 to D. McCallum, gardener to H. Duhring, for 6 heads of Lettuce. And call attention to a fine bunch of Radishes, by G. Huster.

STATED MEETING, MAY 16.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS.

Best Table Design, to D. McQueen, gardener to J. Longstreth.
" Hand Bouquets, " " " " "
" Hanging Basket, to E. R. Hibbert, gardener to F. Rogers.
" Collection of Ornamental Foliage Plants, to E. R. Hibbert.
" " 12 Plants, not over 10-inch pots, to E. R. Hibbert.
" " 6 " " " 8 " " to D. Robertson, gardener to Mr. Baird.
" " Indigenous Plants, to T. Meehan.
" Specimen Pelargonium, to D. McQueen, gardener to J. Longstreth.

Also the following special premiums:

For specimen of Sedum carneum labefolium, exhibited for the first time, $1 to E. R. Hibbert, gardener to F. Rogers.

For specimen of Farfugium and Coleus atropurpureum, exhibited first time, $1 to W. Bailey, gardener to D. R. King.

To Mackenzie & Son, for new Abutilons, $1.

For Table Design, $1 to D. Robertson, gardener to Mr. Baird.

For Collection of Plants, $2 to E. R. Hibbert, gardener to F. Rogers.

Also honorable mention of three plants exhibited by W. Sutherland, gardener to B. Bullock.

Special to J. Pollock, gardener to J. Dundas, for two specimens of Cypripedium barbatum and violaceum, $1.

REPORT OF THE COMMITTEE ON FRUITS.

To John Ellis, for a well ripened bunch of Black Hamburg Grapes, weighing 3 pounds, special premium of $3.

To Mackenzie & Son, for 12 pots Strawberries in fruit, called "Triomphe of Holland," and said to be everbearing, and which appears to be a free bearer, but the fruit is not high flavored, a special premium of $1.

REPORT OF THE COMMITTEE ON VEGETABLES.

For the best Stalks of Rhubarb, which was very fine, the premium of $1 to Charles Harmar.

For the best 24 Stalks Asparagus, $1 to T. Meghran, gardener to O. Jones.

AD INTERIM REPORT, APRIL 24.

The Fruit Committee to whom was referred the box of fruits from the fruit preserving house of Mr. B. M. Nyee, of Cleveland, Ohio, beg leave to report that the box was opened by them on this day, after having been ten days on the way, and the apples were found to be in perfect order. We report the quality of the apples as follows:

MAIDEN'S BLUSH. Small size, red and white color; flavor sweet, crisp, and well kept, but not the Maiden's Blush of Pennsylvania.

BELMONT. Small size, yellow and red color; flavor sprightly, sub-acid and good, crisp and well kept.

PENNOCK. A very good specimen of this well-known variety, *not* mealy, and kept in perfect order.

RAMBO. Striped, not very well kept, being rather mealy; flavor sub-acid.

GREENING. Well kept, and of its usual excellent flavor.

ROXBURY RUSSET. Well preserved, but no better than is usual at this time.

BALDWIN. Well kept, and considerably better than is usual at this season.

A STRIPED GREENISH YELLOW APPLE. Good flavor, juicy and well kept.

BLACK GILLIFLOWER. A poor, discarded variety.

Since writing the above, your Committee have been favored with another box of fruits from Mr. Nyee, which was taken out of his house on the 11th of June, and tasted here on the 16th of June, and found to be in perfect order. We notice the following apples:

RICHFIELD NONSUCH. Deep red color, medium size, flat, with a sprightly, sweet flavor; a very good apple, and very well kept.

THE NORTHERN SPY was also shown in good order.

CATAWBA GRAPES were also shown in perfect condition; bloom not injured in the least, and flavor as fresh and piquant as when first taken from the vines; berries firmly attached to the stems, which were yet green.

Mr. Nyee explained to your Committee the construction and operation of his preserving house, which is perfectly simple, the chief feature being the low temperature (34°) at which the house is kept, and his mode of absorbing the moisture which is continually passing off from the fruit, 50 gallons of water per week having been taken from one of his houses, of which he has five now in operation. These results justify your Committee in recommending this mode of preserving fruits; and as it appears to be peculiarly suited to Grapes, the preservation of the foreign sorts might prove to be a very profitable investment.

AD INTERIM REPORT OF COMMITTEE ON FRUITS, MAY 29.

Through the kindness of Mr. Saunders, of the Experimental Gardens in Washington, we had an opportunity of testing the quality of the "Jucunda Strawberry," which ripened too early to exhibit at our show on the 6th of June. Fruit large and showy, 4 berries weighing 2 ounces, and measuring 4½ inches in girth each. Shape varying from long-pointed to wedge; flesh pinkish-white, with salmon-colored centre; color glossy crimson on one side and scarlet on the other; seeds yellow, large and prominent; flavor sub-acid and pleasant, but without any very decided character. It is a hermaphrodite variety, and is said to produce a large crop of uniformly large berries. We also notice two of his promising seedlings:

No. 1. Berry round, of medium size, and crimson color; flesh white, with pink at edges and centre; flavor sub-acid and very good.

No. 2. Berry large and conical, color scarlet; flesh white, with salmon-colored centre; flavor sub-acid and very good.

STRAWBERRY AND ROSE SHOW.

HORTICULTURAL HALL, June 6th, 1865.

To the President and Members of the Pennsylvania Horticultural Society:

The Committee on Fruits cannot but congratulate this Society on the success attending the first Strawberry show ever held here, the display being very large, and the fruit of the largest and finest description, comprising no less than 150 dishes and 48 varieties.

They have awarded the first premium for best collection of 25 named varieties, 1 pint each, to Wm. Parry.

For the best Collection 12 varieties, 1 pint each, to A. L. Felton.

For the second best Collection 12 varieties, 1 pint each, to E. Satterthwait.

For the best Collection 6 varieties, 1 pint each, to J. McGowan.

For the second best Collection 6 varieties, 1 pint each, to C. Winfield, gardener to T. W. Walter.

For the best quart of any new variety to the Great Eastern, shown by J. Churchman, of Burlington, N. J. Fruit very large and pointed, color crimson; flavor good, rich, sub-acid, and very juicy. This variety is said to grow in large stools, and to make but few runners. We also notice the following new plants:

AGRICULTURIST. Shown by J. S. Collins, Moorestown, N. J. Your Committee do not deem it just to give any opinion of the fruit shown, which was taken from the vines planted this season, and not a fair sample.

Seedling, from D. Nelson.—Berry large and cockscombed-shaped, color scarlet; flesh pink, with hollow in the centre; flavor sprightly, sub-acid; similar in appearance and flavor to the *Austin Seedling*.

GREEN PROLIFIC. Berry large and round, of a light scarlet color; flesh pink, but not high flavored; similar in appearance to Trollope's Victoria, and said to be one of the parents of the Agriculturist. *Union*, shown by Charles Harmar, a very large and showy fruit, said to measure 5 inches in circumference. Berry round of a light scarlet color; flesh firm, of a pleasant sub-acid flavor.

For the best Buffalo Seedling, 1 qt. to N. Leeds, of Cinnaminson. A large and beautiful fruit, of a shining scarlet color, and slightly necked; flesh claret-colored, with crimson centre; flavor sprightly, juicy, and a combination of sweet and acid. A most delicious fruit, but said to be a moderate bearer.

For best of Albany Seedling, to Thomas Meehan.
" " Hovey's Seedling, to C. Harmar.
" " French's " to J. S. Collins.
" " Russell's Prolific, to N. Leeds. This is a large and showy fruit, of good flavor and very productive.

For best Triomphe de Gand, to C. Fox, gardener to J. V. Merrick.
" " Lady Finger, to N. Leeds.

We also call special attention to the following large and beautiful contributions, some of them being so nearly equal to those which took the first premium that your Committee was puzzled to decide, and recommend a special premium of $1 to each.

1 Quart Abington Blush, to G. M. Kohl.
1 " Russell's Prolific, to S. L. Allen.
1 " Triomphe de Gand, to D. W. Herstein.
1 " Albany Seedling, to " "
1 " Lennig's White, to J. M'Gowan.

We also notice a very neat and compact fruit box made of veneer, and with a tuck, so as to be put together with great rapidity. A very good and useful article; contributed by J. Churchman, Burlington, N. J., and called the Burlington Free Fruit Box.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS.

ROSES.

For the best Hybrid Perpetual Roses, 50 Cut Flowers, 25 varieties, to George Simpson.

Second best ditto, to H. A. Dreer.

Best 25 varieties, 12 kinds, to H. A. Dreer.

Second best 25 varieties, 12 kinds, to Thomas Meehan.

Best 12 Cut Flowers, any other class, 6 kinds, to Thomas Meehan.

Second best 12 Cut Flowers, any other class, 6 kinds, to D. McQueen, gardener to J. Longstreth.

Best General Collection, to H. Graham.

Second best General Collection, to R. Buist.

SPECIAL PREMIUMS.

For fine Collection Roses, to Mackenzie & Son, $1.
" " " " " George Simpson, $2.
" " " " " D. McQueen, $1.
" " " " " E. Satterthwait, $2.
" " Design, " " D. McQueen, $3.
" " 2 Designs, " H. A. Dreer, $2.
" " Collection Gloxinas, to R. Buist, $2.

STATED MEETING, JUNE 20.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS.

Best Table Design, to D. McQueen, gardener to J. Longstreth.
" Basket of Cut Flowers, " " " "
" Pair Hand Bouquets, " " " "
" Hanging Basket, " " " "

For the best 12 Ornamental Foliage Plants, to E. R. Hibbert, gardener to F. Rogers.

For the best 6 Ornamental Foliage Plants, to E. R. Hibbert, gardener to F. Rogers.

For the best 6 Foliage Plants, in 10-inch pots, ditto.
" " 9 " " " " " "
" " Specimen Fuchsia, to D. McQueen, gardener to J. Longstreth.

For the best Collection Gloxinia, to G. Huster, gardener to E. Bouvier.

Your Committee recommend the following special premiums, viz:

Best Collection Carnations, 20 varieties to T. Meehan, $1.
" Collection Caladiums, to W. Bailey, gardener to D. R. King, $2.

Your Committee are pleased to mention two beautiful Bouquets with no numbers attached; but your Committee would have been unable to pass upon them, being over the regulation size.

REPORT OF THE COMMITTEE ON FRUITS.

Best quart of Cherries, to A. L. Felton. And recommend special premium of $1 for Hornet Raspberries, to A. L. Felton.

Best Collection of Fruit, to J. McLaughlin, gardener to I. B. Baxter.
" " " " " Jacob Huster, gardener to G. Harrison.

They also notice fine Hornet, of superior size and quality, from C. Harmar, and fine Italian Mulberries, from A. L. Felton.

REPORT OF THE COMMITTEE ON VEGETABLES.

Best 1 Peck Potatoes, to A. L. Felton.
" ½ " Peas, " " "
" Beets, Turnip variety, to A. L. Felton.
" Collection of Vegetables " "
" " by an Amateur, to J. Huster, gardener to G. Harrison.

STATED MEETING, JULY 18.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS.

Best General display of Plants, to E. R. Hibbert, gardener to F. Rogers.
" Table Design, to D. McQueen, gardener to J. Longstreth.
" Basket of Cut Flowers, ditto.
" Pair Hand Bouquets, "
" Hanging Basket, "

Your Committee also notice the following new plants, viz:

Costus Mathortaus, a plant that is likely to prove an ornament to the greenhouse, a premium of $1 to E. R. Hibbert, gardener to F. Rogers.

Also a specimen each of Exostemnia floribunda, Gesneria Dancklaaria and Callicodaphne Indica, a premium of $1 to W. Sutherland, gardener to B. Bullock, and a miniature Fuchsia Tom Thumb, an interesting little variety, a premium of $1 to Thomas Meehan.

Among the old following plants we have the pleasure of calling the attention of members to a splendid specimen plant of Cactus grandiflora, with ten flower-buds almost ready to open, contributed by Mr. Caspar Duhring, premium of $1.

Best 12 Gloxinias, in full bloom, a premium of $2 to E. R. Hibbert.
" 6 Fuchsias, " " " " $1 to George Huster, gardener to A. Cumming.

For Display of Greenhouse Plants, a premium of $1 to G. Huster, gardener to E. Bouvier.

For Display of Greenhouse Plants, a premium of $1 to D. McQueen, gardener to J. Longstreth.

In Cut Flowers there is on exhibition a great variety of Gladiolus, presenting a splendid array of dazzling colors in great abundance. The season being so much earlier than for some years back, and the show being so very fine, your Committee have taken the liberty of giving the premium offered in August for the best collection of $2 for 46 varieties, to H. A. Dreer, and a premium of $1 to George W. Earl.

REPORT OF THE COMMITTEE ON FRUITS.

Best quart Raspberries, "Gambon," to A. L. Felton.

This variety, once very popular in France, was superseded by the "Hornet," a better sort.

Best Collection of Pearl and Gambon, to A. L. Felton.
" Peaches, very superior in flavor, to D. Robertson, gardener to M. Baird.
" Quart Currants, Red Dutch, to A. L. Felton.

A special premium of $3 to James Astley, for 3 superb bunches of Black Hamburg, "White Syrian," and White Frontignan Grapes. A special premium of $2 to G. Huster, for 5 bunches of well ripened Grapes, White and Grizzly Frogtignan, White Sweetwater, Black Prince and Red Chasselas.

We also notice very fine displays of Lawton Blackberries from A. L. Felton, Charles Harmar, and D. McCallum, gardener to H. Duhring.

REPORT OF THE COMMITTEE ON VEGETABLES.

Best Collection of Vegetables, to A. L. Felton, premium of $3; to J. Huster, gardener to George Harrison, for Collection of Vegetables, by an Amateur, $2, and a special premium of $1 to C. Crucknell, for some fine Evergreen Peas, and half dozen Cucumbers.

Special premium of $1 to A. L. Felton, for fine grown Tomatoes, and your Committee notice on exhibition the Tilden Tomato, a new variety from Davenport, Iowa, shown for first time.

Mr. J. E. Mitchell offered the following Resolution, which was adopted:

HALL OF THE PENNA. HORT. SOCIETY,
Philadelphia, July 18th, 1865.

Resolved, That this Society has been much pained on hearing of the death of James Dundas, who, for many years, has been one of our Vice-Presidents, and that we deeply sympathize with his family in the loss they have sustained.

Mr. W. Schaffer offered the following Preamble and Resolutions, which were adopted:

Whereas, It has pleased the All Wise Providence to remove from among us our much esteemed and respected fellow-member, Richard Price; therefore,

Resolved, That we sincerely sympathize with the family of Mr. Price, in this their time of mourning, for one so well known to have been always kind, considerate and affectionate in his family, while, at the same time, we have to regret the loss to the Society of one of its oldest, most faithful and steadfast friends.

Resolved, That a copy of the above Resolutions be transmitted to the family of the deceased.

STATED MEETING, AUGUST 15.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS

Best Display of Plants, to D. Robertson, gardener to M. Baird.
" Basket of Cut Flowers, to D. McQueen, gardener to J. Longstreth.
" Table Design of Cut Flowers, " " " "
" Pair Hand Bouquets, " " " "
" Hanging Basket, to E. R. Hibbert, gardener to F. Rogers.
" 6 Specimens Gladiolus, to H. A. Dreer.
" Collection Herbaceous Phlox, to Thomas Meehan.

SPECIAL PREMIUMS.

Best Pompone Dahlias, 24 Cut Flowers, $1 to Walter Bailey.
" Collection of Plants, $3 to E. R. Hibbert, gardener to F. Rogers.
" " " " $2 to D. McQueen, gardener to J. Longstreth.
" Basket of Cut Flowers, $2 to G. Huster, gardener to A. Cummings.

Your Committee were pleased to notice 6 cut flowers of Gladiolus, from a private grower, that were considered by many superior to those receiving the prizes, but were not entered for competition.

Also a very fine lot of Double Zinnias, exhibited by Daniel Curtin, gardener to Benjamin J. Leedom.

The Committee have frequently remarked, with great pleasure, the beautiful display of rare and graceful plants in the conservatory of our late President, M. W. Baldwin, Esq., on Chestnut Street above 11th. They would respectfully offer the following Resolutions, and ask their adoption. The gardener, Mr. Joyce, by his diligent attention and close confinement to his professional duties, has been deprived of the opportunity to compete for the regular premiums of the Society;

Resolved, That the thanks of this Society are due, and are hereby tendered to M. W. Baldwin, Esq., for his liberality and unselfishness in throwing open to the public his elegant conservatory on Chestnut Street, and to his gardener, William Joyce, for the professional skill displayed by him in the cultivation of the magnificent specimen plants with which it is furnished,

Resolved, That the Silver Medal of the Society be awarded to Mr. Joyce, as a testimonial of its appreciation of his skill and taste.

REPORT OF THE COMMITTEE ON FRUITS.

The Committee report a large and fine display of Fruits, and regret that the schedule is not more full, in order to give the regular premiums. They report the following awards, as per schedule.

Best 12 Nectarines, Stanwick, to George Huster, gardener to A. Cumming.

Best 12 Nectarines, Elruge, special mention, to D. McQueen, gardener to J. Longstreth.

Best quart Lawton Blackberries, to A. L. Felton.

They also report the following special premiums, and desire to call attention to very fine Julienne and Washington Pears, from Charles Harmar.

A Seedling Peach, free and good flavor, like Early York, to A. L. Felton.

Best Isabella Grapes, to A. L. Felton.

Apple, Cornell's Fancy, ripe and a good early apple, worthy of propagation, from S. W. Noble.

Grapes, 6 bunches well colored and ripened Hamburgs, $1to D. Robertson, gardener to M. Baird.

Grapes, 3 bunches Black Hamburg, $1 each.

Black Prince, Muscat of Alexandria, Red Chasselas, White Frontignan, Grizzly Frontignan, Sweetwater, $3 to Gebhart Huster, gardener to E. Bouvier.

Grapes, 3 bunches Franklindale, $1 to D. McQueen, gardener to J. Longstreth.

Grapes, 3 bunches Black Hamburg, 3 of White Frontignan, very large and well ripened, $2 to Daniel Curtin, gardener to Benjamin J. Leedom.

Grapes, 1 bunch White Syrian, very large and beautiful, and 1 each White Chasselas, White Frontignan, Black Hamburg, very large and fine, Raisin de Calabre, $3 to James Astley, gardener to Eden Hall.

Grapes, Adirondac, fully ripe and of good flavor, from Isaac Pullen.

Grapes, "Ingram's Hardy Prolific Muscat," an early and promising variety, from J. E. Mitchell.

REPORT OF THE COMMITTEE ON VEGETABLES.

For best Display of Vegetables, $3 to A. L. Felton.

A premium of $2 to Jacob Huster, gardener to G. Harrison, for best Display of Vegetables, by an Amateur.

A special premium for a Display of Vegetables, $1 to Joseph Gœhring, gardener to J. E. Mitchell.

The Committee notice very favorably some Rhode Island Asylum Corn, by Coleman Fisher.

Also some finely grown Tomatoes, from A. L. Felton; and some fine Tilden Tomatoes, very solid and handsome shaped, and said by the grower to be a kind which keeps a long time on the vine when gathered, from A. W. Harrison.

Also some large and well grown Garnet Chili Potatoes, from C. Harmar.

Resolved, That the meaning of Article IV. in the Schedule Regulations of 1865, is that no exhibitor can take more than one premium in each class of articles, nor unless the articles shown are all dissimilar.

Mr. J. E. Mitchell offered the following Resolution, which was adopted:

Whereas, This Society has learned with great pleasure that the Fruit Growers' Society of Eastern Pennsylvania intend to meet in this city in September next, it is

Resolved, That we tender to them the use of this Hall for their discussion, and that tables be set apart in the Autumnal exhibition for their display of fruits.

AUTUMNAL EXHIBITION.

SEPTEMBER, 1865.

The Autumnal Exhibition was held on the 27th, 28th and 29th of September, 1865, and continued on the 30th up to 10 o'clock, P. M.

It was arranged under a handsome tent, 80 feet by 200, erected on the lot south of and adjoining the Academy of Music, Broad Street, near Spruce.

The entire space was floored over, and to the right of the entrance was the Ticket Offices and Committee Rooms, and to the left were the Ladies' Committee and Retiring Rooms. A table 10 feet wide extended all around the circumference of the tent, the north side, the west end, and a part of the south side being devoted to plants and flowers, and the remainder of the south side was well filled with vegetables. A row of tables, 10 feet wide, down the middle, were filled with aquaria designs, wax-work an

grapes, &c., and rows of narrow tables on either side were devoted to fruits.

At the west end, an island, filled with tropical plants, and surrounded with a basin of water, sparkling with various fountain jets, was reached by a beautiful rustic bridge. A band of music was concealed in the recesses of this tropical island, whose sweet strains harmonized with the music of the falling waters. The display of plants, especially the variegated-leaved sorts, was probably never excelled by this Society. The display of fruits generally was very creditable, but not so large as on former occasions. The foreign Grapes shown were remarkably fine, and showed high culture and great care in growing them. The designs were numerous, and generally in good taste.

The display was well patronized by the public, being well attended through the day, and thronged in the evening, notwithstanding an increased charge for admission.

The gardeners exerted themselves to make it a successful show, and the various Committees labored industriously in their several departments, but to the Chairman especial credit is due, for his indefatigable attention previous to and during the whole time of the exhibition, thereby making it one of the most successful ever held by this Society.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS.

Best Collection of 12 Plants, not over 16-inch pots, to W. Joyce, gardener to M. W. Baldwin.

Second best Collection of 12 Plants, not over 16-inch pots, to D. McQueen, gardener to J. Longstreth.

Best, same as above, open to all, to E. R. Hibbert, gardener to F. Rogers.

Best Specimen Plant in pot or tub, to John Sherwood.

Second best " " " " " to Mark Reeves, gard. to R. Patterson.

Third best " " " " " F. O'Keefe, gardener to J. Heyl.

Best Collection 6 Plants, not over 10-inch pots, to E. R. Hibbert, gardener to F. Rogers.

Second best Collection 6 Plants, not over 10-inch pots, to D. Robertson, gardener to M. Baird.

Third best Collection 6 Plants, not over 10-inch pots, to D. McQueen, gardener to J. Longstreth.

Best specimen Ornamental Foliage Plants, 12-inch pots, to W. Joyce, gardener to M. Baldwin.

Best Collection 6 Variegated Foliage Plants, 12-inch pots, to M. Reeves, gardener to R. Patterson.

Second best Collection 6 Variegated Foliage Plants, 12-inch pots, to D. Robertson, gardener to M. Baird.

Best Specimen Variegated Plant, to Mrs. A. J. Catherwood.

Best Collection of Ferns, 12-inch pots, to E. R. Hibbert, gardener to F. Rogers.

Second best Collection of Ferns, 12-inch pots, to W. Joyce, gardener to M. W. Baldwin.

Best Caladiums, 12 Plants, to M. Reeves, gardener to R. Patterson.

Second best Caladiums, 12 Plants, to W. Joyce, gardener to M. W. Baldwin.

Best Marantas, 6 Plants, to E. R. Hibbert, gardener to F. Rogers.

Second best Marantas, 6 Plants, to W. Joyce, gard. to M. W. Baldwin.

Best Dracœnas, 6 Plants, to E. R. Hibbert, gardener to F. Rogers.

Best Lycopodiums and Selaginellas, in 12-inch pots, to E. R. Hibbert, gardener to F. Rogers.

Second best Lycopodiums and Selaginellas, in 12 inch pots, to W. Joyce, gardener to M. W. Baldwin.

Best Fuchsias, 6 Plants, to Gebhart Huster, gardener to M. Bouvier.

" Anæctochilus, 6 Plants, to E. R. Hibbert, gardener to F. Rogers.

Your Committee feel so gratified with the splendid display of this exhibition in plants, and having to exercise such careful and strict discrimination in awarding the stated premiums, that they feel they would be derelict in their duty to competitors to pass the remainder of those unsuccessful in receiving premiums offered on the schedule, that they have awarded the following special premiums, and respectfully ask your concurrence, viz:

For Collection Greenhouse Plants, to Gebhart Huster, $3.
" Collection of Rare and Beautiful Plants, to R. Buist, $10.
" Collection of Plants, to F. O'Keefe, gardener to J. Heyl, $5.
" Japan Plants, to J. Sherwood, $3.
" Collection of Plants, to C. Crucknell, gardener to C. Le Boutillier, $3
" " " " to P. Mackenzie & Son, $3.
" " " " to D. W. White, $2.
" " " " to W. Sutherland, gardener to B. Bullock, $3.
" " " " to M. Reeves, gardener to Gen. Patterson, $1.
" " " " to H. A. Dreer, $3.
" " " " to D. R. King, $10.
" " " " to Thomas Meehan, $3.
" " " " to Mrs. A. J. Catherwood, $5.
" " " " to W. Joyce, gardener to M. W. Baldwin, $2.
" " " " to E. R. Hibbert, gardener to F. Rogers, $3.
" " " " to S. C. Borden, $1.

The Island of the Muses was a great attraction of the exhibition, and its decorations were from the gardens of Mrs. George W. Carpenter, and Messrs. Fairman Rogers, Gen. Patterson, Matthew Newkirk, Robert Buist, D. R. King, and others.

That old and welcome pioneer of our Exhibitions, the "Sago Palm," was at his post, deposited by Mrs. G. W. Carpenter, was received with satisfaction by the Society, and was placed at the door to proclaim to the people of Philadelphia and its surroundings, that the Exhibition is now open. Long life to him and his possessors, and long may he continue to be an ornament to the Society.

A beautiful collection of plants from the garden of David Fergusson, Laurel Hill, not in competition, was amongst the features of the exhibition. Although among the smallest, yet we might say the most rare, was deposited by Mrs. Scull, a small plant from the land of Palestine, called he Anastatica Hierochuntica, commonly named the Resurrection Plant

or Rose of Jericho. Another rarity we have to report, growing almost at our own doors, a large lot of plants of Phoradendron florescens, or American Mistletoes, interesting for its antiquity and literary fame. Millons have repeated its name, and have passed away without ever knowing more of its history than that it grew upon other trees. It was procured by our worthy President, D R. King, from the State of Delaware. Now that it has been introduced, long may he continue his visits annually for our instruction and enjoyment. One other article we have to report, viz: The flower-stem, with the seed pods, of the Agave Americana, from the garden of Mrs. Carpenter, of Germantown, which proved quite interesting. Here the labors of the Committee ought to cease, but a something kept looking us in the face so boldly that we resolved to ask ourselves the question, "have we performed our duty in full?" The answer came—"No you have not." Here is a large and varied collection from the tropic and temperate zones, all of them raised within a city of a population of 750,000 inhabitants, making it evident to us that the gardeners here among us are men possessing, in no small degree, intelligence, industry, perseverance and care, to have kept their plants in such excellent health and beauty. Your Committee offer the above with pleasure, so that it may stand on the records of the Society, and trust the above report will meet with your approval.

REPORT OF THE COMMITTEE ON BASKETS, DESIGNS AND BOUQUETS.

Best General Collection of Cut Flowers, to Henry A. Dreer	$5 00
" 24 Varieties of Dahlias, to Mr. G. Schmitz	3 00
Second best 24 Varieties of Dahlias, to R. Buist	2 00
Best General Collection of Roses, to R. Scott	5 00
Best General Collection of Verbenas, 24 varieties, to H. A. Dreer	2 00
Second best General Collection of Verbenas, to John Gray	1 00
Best General Collection of single Petunias, to Thomas Meehan	1 00
" " " " Gladiolus, to H. A. Dreer	2 00
" Design formed of Cut Flowers, to W. Bailey, gardener to D. R. King	20 00
Second best Design formed of Cut Flowers, to D. McQueen, gardener to J. Longstreth	10 00
Best Table Design, to D. McQueen, gardener to J. Longstreth	8 00
Second best Table Design, to D. Robertson	5 00
Best Basket Cut Flowers, W. Joyce	5 00
Second best Basket Cut Flowers, George Huster	3 00
Third best Basket Cut Flowers, to D. McQueen	2 00
Best Hanging Basket, to E. R. Hibbert	3 00
Second best Hanging Basket, to F. O'Keefe, gardener to J. Heyl	2 00
Best Phantom Bouquet, to Mrs. J. Sherman	5 00
Best Pair Hand Bouquets, to A. L. Pennock, Jr	3 00
Second best Pair Hand Bouquets, to D. McQueen	2 00
Best Aquarium, to Peter Raabe	5 00

SPECIAL PREMIUMS.

For a Table Design, $3 to J. E. Mitchell, which for the excellent taste displayed, and for the fine adaptability of the design as a dinner table ornament, is worthy of greater commendation than can be expressed by an award.

For a Table Design, $3 to Mrs. A. J. Catherwood, of beautiful arrangement, but unfortunately too late for competition.

Best Table Design, to Charles Winfield, gard. to T. U. Walter...	$1 00
Second best Table Design, to John Kinnier.....	1 00
For 7 Hanging Baskets, which are exceedingly well grown, to E. R. Hibbert, gardener to F. Rogers.....	5 00
For 3 Hanging Baskets, to D. McQueen.....	2 00
" " " " F. O'Keefe, gardener to J. Heyl.....	1 00
" " " " C. Crucknell, gardener to C. Le Boutillier.	1 00
" Rustic Parlor Stand, to D. R. King.....	2 00
" " " " " D. McQueen.	2 00
" " " " " A. L. Pennock, Jr.....	1 00
" " " " " H. A. Dreer.....	1 00
" Rustic Design, composed of Plants, Flowers and Grapes, to J. E. Mitchell.....	2 00
" Rustic Table Violets, John Gerney.....	1 00
" 12 Fancy Vases, filled with Ferns and Selaginellas, &c., to George Williams..	3 00
" Table Bouquet, to Charles Winfield	1 00
" Wax Fruits, to H. Kraitser.....	2 00
" Basket Cut Flowers, to A. L. Pennock.....	2 00
" Collection Dwarf Dahlias, to R. Buist.....	1 00
" Bouquet of Wax Leaves, to Mrs. A. Williamson.....	3 00

This article is deserving of special mention for the extreme fidelity of the imitation, as well as for the gracefulness of the arrangement.

For Leather Basket and Wax Fruit, to Mrs. A. Williamson.....	$2 00
" Vase of Wax Confectionery, to H. Williamson.....	1 00
" Wreath of Dried Flowers, to Mrs. E. Harris.....	3 00

This is deserving of special mention for the preservation of the colors and lightness or openness of the arrangement.

For two Wreaths of Dried Flowers, to Mrs. E. K. Tryon.....	$2 00
" Wreath of Hair Flowers, to Mrs. E. Harris.....	3 00
" Wax, Fruit and Flowers, to Miss Chapman.....	3 00
" 2 Vases of Phantom Leaves, to Mrs. Phillips.....	2 00

REPORT OF THE COMMITTEE ON FRUITS.

Foreign Grapes, 6 cut bunches, 6 varieties, viz: Muscat of Alexandria, Santa Cruz, White Nice, Black Damascus, Black Hamburg, Calabrian Raisin, to Wm. Fowler, gardener to J. Hopkins, Baltimore.

Second premium for Victoria Hamburg, Prince Albert, Charlesworth Tokay, Black Ferara, Palestine, Lady Downe's Seedling, to Daniel Curtin, gardener B. J. Leedom.

First premium for Hamburg, 3 bunches, to S. Greasley, gardener to D. L. Brown.

Second premium for Hamburg, 3 bunches, very fine, weighing 9 pounds, to James Astley, gardener to Eden Hall.

First premium for any other dark variety, "Lady Downe's Seedling," to Daniel Curtin, gardener to B. J. Leedom.

Second premium for "Frankindale," to S. Greasley, gardener to D. S. Brown.

First premium, any variety, "White Muscat of Alexandria," to Wm. Fowler, gardener to John Hopkins.

Second ditto, to Charles Moffet, gardener to John Baird.

First premium for any white variety, 3 bunches "White Frontignan," to Samuel Greasley, gardener to David S. Brown.

Second ditto, "White Syrian," to P. Syng, gardener to Dr. Camac.

First premium for any new variety shown first time, "Gros Colman," to J. E. Mitchell.

Second ditto, "Muscat Hamburg," to Jacob Huster, gardener to G. Harrison.

The above are all very well grown, and show high culture and great care.

First premium, for Collection of Native Grapes, named varieties, to P. Raabe, viz: Elsenboro, Powell, Raabe, Haines' Seedling, Loomis Honey, Isabella, Franklin, Taylor, Lenoir, Clinton, Delaware, Maxatawney, Emily, Diana, Rebecca, Clara, Union Village, Catawba, Cassidy, grown in open air.

Second ditto, for Clinton, Delaware, Concord, El Paso, York, Maderia, to J. Colder.

First premium for Delaware Grapes, 6 bunches, to R. Norris.

Second premium for Delaware Grapes, 6 bunches, to F. Fuss, gardener to W. Walters.

First best, Concord, to R Norris.
" " Diana, to F. F. Merceron.
Second " " to Mackenzie & Son.
First " Catawba, to F. F. Merceron.
Second " " to P. S. Bunting.
First " Creveling, to F. F. Merceron.
" " Isabella, to C. P. Hayes.
Second " " to P S. Bunting.
First " Any variety, 12 bunches "Clinton," for Wine Making, to F. F. Merceron.

Second best, any variety, 12 bunches "Loomis Honey," to P. Raabe.

Best Collection of Pears, named varieties, 3 specimens each, for 180 varieties of well-grown and beautiful fruit, to Ellwanger & Barry.

Second best ditto, 120 well-grown and fine sorts, to E. Satterthwait.

First " " 12 specimens of Seckel, to D. Curttn, gardener to B. J. Leedom.
" " " Duchess D'Angouleme, to E. Satterthwait.
" " Beurre d'Anjou, to A. L. Pennock, Jr.
" " " Lawrence, to Ellwanger & Barry.
" " " Sheldon, to Ellwanger & Barry.

Best Ornamental Dish or Basket of Assorted Pears, to E. Satterthwait The display of Pears was very large and beautiful.

First best Collection of Apples, named varieties, 3 specimens each, to Ellwanger & Barry.

Second best ditto, to Charles B. Ott.

First best Peck Quinces, to Mackenzie & Son.

" " Figs, 12 specimens, to R. Salisbury.

" " Pine Apples, 6 specimens in pots, to W. Joyce, gardener to M. W. Baldwin.

" " Raspberries, 1 quart, to Wm. Parry.

" " Honey, to S. Macferran.

Your Committee desire to call attention to the beautiful display of Foreign Grapes beside those which took the regular premiums, and it puzzled the Committee to decide where so much excellence was shown in all the contributions. We recommend the following special premiums:

Best 12 bunches Cannon Hall Muscat, very large and finely grown, and colored in a cold vinery, $4 to George Nichol, gardener to C. McAllister.

Best 6 bunches well-grown and ripened Grapes, viz: Grizzly Frontignan, Black Hamburg, Cannon Hall Muscat, White Nice, Black Prince, White Muscat of Alexandria, $3 to W. Joyce, gardener to M. W. Baldwin.

We also call special attention to, and make honorable mention of, the following:

Best 3 bunches Black Damascus, very large and well grown, to W. Fowler, gardener to John Hopkins, Baltimore.

Best 3 bunches Cammon Hall Muscat, very large and well grown, to Philip Syng, gardener to Dr. Camac. Also, large and beautiful White Syrian, from the same.

Best 6 bunches well grown Grapes, viz: Black Hamburg, Pope's Hamburg, White Muscat, Sweetwater, Muscat Hamburg, White Frontignan, to Jacob Huster, gardener to G. Harrison.

Best 6 bunches as follows: Black Prince, White Frontignan, White Chasselas, Ingram's Muscat, Black Frontignan, Black Hamburg. Also Buckland's Sweetwater, Mission Grape, and Hungarian Wine Grape, to J. E. Mitchell.

Best 4 bunches of large, beautiful and well grown specimens of Muscat of Alexandria, White Sweetwater, Purple Constantia, White Portugal, to Samuel Greasley, gardener to D. S. Brown.

Best 5 varieties of large and well grown Grapes: Muscat of Alexandria, Black Frontignan, Cannon Hall Muscat, White Nice, Black Hamburg, to George Huster, gardener to A. Cumming.

Best 3 bunches Frankindale, to D. McQueen, gardener to J. Longstreth.

Native Grapes. Special mention is made of the following:

Best Delaware and Catawba, well grown, Thomas S. Downing.

Rebecca, Louisa, Miller and Isabella, Aaron Bombaugh.

Maxatawney, well ripened and colored, P. Weaver.

Elsenboro, well grown, A. W. Holt.

Diana, Maxatawney, Union Village, L. Chamberlain.

Creveling, a very fine show, F. F. Merceron.

Kilvington, well ripened, R. M. Marshall.

Dish of Bland or Powell, well ripened, and of fine flavor, Mrs. Phillips.

Catawba and Clinton, J. R. Keim.

Your Committee call special attention to the interesting Hybrids shown by Jacob Moore & Bro., of Rochester, N. Y., viz:

"Diana Hamburg." Copper color, bunch and berry large; flesh tender, juicy, sweet and very pleasant.

"Hardy Chasselas." A white Grape.

"Clover St. Black." Dark blue, very straggling bunch; flavor somewhat like the Black Prince.

"Spotted Globe." Unripe, similar in appearance to Catawba.

"Improved Clinton." Larger than the Clinton, and improved in flavor.

"Moore's Hybrid." Purple color, very slightly oval; flavor very good.

"White Musk." Not in a condition to judge of.

"Iona." From Dr. Grant; fruit similar in appearance to the Catawba, but a decided improvement over that variety in flavor. The bunches before us are not as large as they are generally grown, and not in good condition.

SPECIAL PREMIUMS.

Best Dish of beautiful Seedling Peaches, $2 to John Sherwood.

" " " fine Elsenboro Grapes, $1 to C. S. Esher.

Your Committee desire to make honorable mention, and call special attention to the following contributions:

2 Varieties of fine Pears, H. C. Brick.

3 Varieties of fine Pears, F. F. Mercerou.

Dish of Superior Butter Pears, Mrs. Hannah Robbins.

8 Varieties of fine Pears, P. S. Bunting.

30 Varieties of fine Pears, J. Gœhringer.

31 Varieties very superior Pears, C. Crucknell, gardener to C. Le Boutillier.

1 Dish of fine assorted Pears, C. Crucknell, gardener to C. Le Boutillier.

Collection of Pears and Nuts, C. Harmar.

Very superior Glout Morceau, Napoleon, Doyenne Blanc, to C. S. Esher.

Dish of very fine Heath Peaches, Samuel Thompson,

Gloria Mundi Apples, very large, Mrs. Mary R. Potter.

Collection of Pears, very well ripened, D. W. Gross.

Beurre Clairgeau Pears, very superior, G. H. Small.

2 Dishes Beurre Bose and Beurre Diel, very beautiful and well ripened, Aaron Bombaugh.

Collection of Apples, T. S. Downing.

Fine Dish Beurre D'Anjou Pears, W. S. Fowler.

Collection of Pears, 30 varieties, well grown and well ripened, A. Barker.

14 Varieties, including 2 dishes of fine Pears, Richard Thatcher.
10 Varieties of Apples and 4 of Pears, S. W. Noble.
4 Varieties Pears, including Jones Seedling, Thomas Garrigues.
5 Varieties Pears, from Mackenzie & Son.
2 Dishes Beurre D'Anjou and Easter Beurre Pears, J. S. Houghton.
Collection of Apples, P. S. Bunting.
12 Fine Beurre Clairgeau Pears, R. Salisbury, gardener J. Shipley.
Collection of 3 varieties of Apples, F. A. Oppell.
Peach, large and beautiful, Miss Jenner.
Dish of fine Quinces, L. Chamberlain.
" " " W. Joyce, gardener to M. W. Baldwin.
Seedling Pears, coarse-grained sweet and good, from Robert Allen.
28 Varieties of Pears, well grown, Wm. Parry.
Dish Quinces, very fine, Wm. Parry.

The following are all very superior and well grown, showing that good Pears can be grown in East Pennsylvania:

Pears, 1 dish each, Howell and Easter Beurre, large and fine. Lawrence, unusually fine; Urbaniste, Buffam, (this is one of the best of our Native Pears), Beurre D'Anjou, from E. Satterthwait.

18 Varieties fine Pears, 1 dish of superior Duchess, 1 dish superior "Glout Moreeau," 4 large dishes of Pears, resembling the Buffam; Collection of Apples; Grapes, Raspberries, Melons and Nuts, A. L. Felton.

Dish of Doyenne D'Ete, very beautiful, from Benjamin Coates.

3 Dishes of Pears, well grown and beautiful, (no name given.)

Dish of Quinces, fine, E. Williams.

Your Committee cannot close this report without congratulating this Society on the success of this display, and of the great improvements made in the cultivation of fruits, especially of Foreign Grapes, the display in this department being one of the finest ever shown by this Society. They also urge on the Society the necessity of having a permanent hall for their displays, the additional expense incident to holding them under tents being almost equal to the interest on the cost of building a hall.

REPORT OF THE COMMITTEE ON VEGETABLES.

First best display of Vegetables, by Market-gardener, to A. L. Felton.
" " " " " " Amateur, to F. O'Keefe, gardener to J. Heyl.
Second " " " " " " " J. Gœhringer.
Third " " " " " " " Charles Harmar.
First best Potatoes, 1 bushel "Early Goodrich," to A. W. Harrison.
Second " " 1 " "Cuzco," to A. L. Felton.
First " Collection 20 Varieties, to. A. W. Harrison.
" " Any new variety "Harrison," to A. W. Harrison.
" " Beets, to A. L. Felton.
" " Carrots, to J. McGowan.
" " Salsify, to F. O'Keefe, gardener to J. Heyl.

First best Onions, to A. L. Felton.
" " Cabbage, to " "
" " Lettuce, to " "
" " Celery, to P. Syng, gardener to Dr. Camac.
Second " " to F. O'Keefe, gardener to J. Heyl.
First " Egg Plants, to A. L. Felton.
" " Tomatoes, "Tilden," very fine, to A. W. Harrison.
" " Sweet Corn, to A. L. Felton.
" " Pumpkins, to D. Curtin, gardener to B. J. Leedom.
Second " " to J. McDonald.

The Committee on Vegetables further notice: Jacob Huster, gardener to George Harrison, Collection of Vegetables, and recommend a special premium of $2 for the same; and make honorable mention of a very fine specimen of Apple Pie Melon, P. S. Bunting. Also some fine Mangel Wurtzel, D. Curtin, gardener to B. J. Leedom. Also a new Seedling Potato, called "Prairie Seedling," F. F. Merceron; and some fine specimens of Early Goodrich, Calico, Gleason, and Andes Potatoes, and fine Egg Plants, H. A. Dreer.

STATED MEETING, OCTOBER 17.

The Chairman of the Committee on Autumnal Exhibition made a verbal report, showing receipts..... $3456.83
Expenditures as far as ascertained..... 3113.71
Giving a balance of profits applicable to the premium list..... 343.12
Which may be reduced somewhat by bills yet to be presented.

On motion of J. E. Mitchell, the report was adopted, and the following Resolution offered by him, was unanimously adopted.

Resolved, That the thanks of this Society are due, and hereby tendered to Charles Harmar, Esq., Chairman of the Committee on Autumnal Exhibition for the close attention and skill with which he managed the late display, thereby making it one of the most successful ever held by this Society.

AD INTERIM FRUIT REPORT.

PHILADELPHIA, OCTOBER 17TH, 1865.

No. 1. Pear received from J. C. Price, and ripe October 9th. Color yellow; flavor sweet, juicy, buttery and quality good.

No. 2. Pear received from John Sherwood, and ripe October 11th, 1865. Color yellow, with russet spots; flavor sweet, melting, very juicy and quality best.

No. 3. Pear received from J. C. Price, and ripe October 9th. Color russety yellow, and thickly covered with russet spots; flavor sweet, juicy and melting, and quality best.

The names of the above could not be obtained, but if the trees are healthy and good bearers, No. 2 and 3 of these pears are well worthy of cultivation.

The following letter from the President of the United States was read:

EXECUTIVE MANSION,
Washington, D. C., Oct. 2nd, 1865.

To D. RODNEY KING, ESQ.,
President of the Pennsylvania Horticultural Society,

SIR:—Your kind present of Exotic Grapes, to which was awarded the highest premium at your late Autumnal Exhibition, was duly received by me, with your accompanied letter in behalf of the Society. You will please accept and convey to your Society my sincere thanks for this testimonial of your respect and confidence.

Truly, Yours,
ANDREW JOHNSON.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS.

Best General Display of Plants, to E. R. Hibbert, gardener to F. Rogers.

Best Basket of Cut Flowers, to W. Joyce, gardener to M. W. Baldwin.

" Pair Hand Bouquets, to D. McQueen, gardener to J. Longstreth.

" Hanging Basket, to E. R. Hibbert, gardener to F. Rogers.

SPECIAL PREMIUMS.

First Best Basket of Cut Flowers, to D. McQueen, gardener to J. Longstreth, $2.

Second best Basket of Cut Flowers, to Gebhart Huster, gardener to E. Bouvier, $1.

Best Pair Hand Bouquets, to George Huster, gardener to A. Cumming, $1.

Second best Pair Hand Bouquets, to F. O'Keefe, gardener to J. Heyl, $1.

Best Hanging Basket of Plants, to D. McQueen, gardener to J. Longstreth, $1.

REPORT OF THE COMMITTEE ON FRUITS.

Best Foreign Grapes, Black Hamburg, 3 bunches, to G. Huster, gardener to E. Bouvier.

Best Pears, 12 varieties, to E. Satterthwait.

Second best Pears, 6 varieties, to C. Crucknell, gardener to C. Le Boutillier.

Best Collection 30 varieties, to E. Satterthwait.

We also notice a fine bunch of Decan's Superb Grape, from C. Crucknell, gardener to C. Le Boutillier.

Also a dish of Buffam Pears, from A. L. Felton.

REPORT OF THE COMMITTEE ON VEGETABLES.

Best Collection of Vegetables, to A. L. Felton.

" " " " by an Amateur, to F. O'Keefe, gardener to J. Heyl.

They also notice some very fine Cauliflower and Broccoli, from A. L. Felton.

Also specimens of the new German Scarlet Winter Radish, White Cucumber, by Miss Percival.

STATED MEETING, NOVEMBER 21.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS.

Best General Display of Plants, to E. R. Hibbert, gardener to F. Rogers.

Best Table Design of Cut Flowers, to D. McQueen, gardener to J. Longstreth.

Basket of Cut Flowers, to W. Joyce, gardener to M. W. Baldwin.

Best Pair Hand Bouquets, to D. McQueen, gardener to J. Longstreth.

Best Hanging Basket, to Gebhart Huster, gardener to M. Bouvier.

Best Chrysanthemums, 6 Plants, Large Flowering, to D. McQueen, gardener to J. Longstreth.

Best Chrysanthemum, 6 Plants, Dwarf Varieties, to D. McQueen, gardener to J. Longstreth.

Best Chrysanthemums, Specimen Plant, to D. McQueen, gardener to J. Longstreth.

$3 to W. Joyce, gardener to M. W. Baldwin, for 3 splendid specimens of Pitcarnia splendens, Sonerila, and Maxillaria pictum; and a premium of $15 to P. Mackenzie & Son, for Chrysanthemum from Japan, of rather a singular appearance, with their fringed flowers.

REPORT OF THE COMMITTEE ON FRUITS.

12 Varieties of Pears, to E. Satterthwait; Lawrence, Easter Beurre, Doyenne D'Alencon, Chaptal, Catillac, Winter Nelis, Beurre D'Anjou, Duchess D'Angouleme, Vicar of Winkfield, Urbaniste, Glout Morcean.

3 Bunches Foreign Grapes, to W. Joyce, gardener to M. W. Baldwin: 2 Black Frankenthal, Palestine.

REPORT OF THE COMMITTEE ON VEGETABLES.

Best 6 Heads Brocoli, $2 to A. L. Felton.
" 6 Stalks Celery, $1 to F. O'Keefe, gardener to J. Heyl.
" 3 Heads of Cauliflower, $1 to A. L. Felton.
" 3 Heads Brussels Sprouts, $1 to F. O'Keefe, gardener to J. Heyl.

Also a special premium of $2 to A. L. Felton, for a very fine display of Vegetables.

Annual Meeting.

The Annual Meeting of the Pennsylvania Horticultural Society was held at their Hall, corner of Broad and Walnut Streets, on Tuesday Evening, the 21st day of November, 1865.

The following named gentlemen, were duly elected permanent officers for the ensuing year:

President	D. Rodney King.
Vice-Presidents	Caleb Cope, Robert Buist, M. W. Baldwin, Charles Harmar.
Corresponding Secretary	Thomas Meehan.
Recording Secretary	A. W. Harrison.
Prof. of Botany	Thomas P. James.
Prof. of Horticultural Chemistry	J. C. Booth.
Prof. of Entomology	S. S. Rathvon.

STATED MEETING, DECEMBER 19.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS.

Best General Display of Plants, to E. R. Hibbert, gardener to F. Rogers.

Best Table Design, to D. McQueen, gardener to J. Longstreth.

" Basket of Cut Flowers, to W. J. Young, gardener to S. Morris.

" Pair Hand Bouquets, to D. McQueen, gardener to J. Longstreth.

" Hanging Basket, to D. McQueen, gardener to J. Longstreth.

And a special premium of $1 to George Huster, gardener to A. Cumming, for a collection of Chinese Primroses.

Your Committee are pleased to notice a Bedding-out Plant, a Achyranthes Verschaffeltii, from the garden of D. R. King, Esq. From its appearance, we should think that it would prove a very pretty and interteresting plant, and hope it will be moderately introduced.

AD INTERIM REPORT.

The Fruit Committee on Apples, presented by Louis Blodgett, Esq., from trees grown in Warren County, Pa., report:

No. 1. Large, round, yellow color, with slight blush, and spotted; flavor sub-acid, and moderately juicy; flesh very tender, quality good. Season October and November, but is a good keeper; eaten November 14th, 1865. It is known as the "Speckled or Westbrook," having originated on the farm of Mr. Westbrook, Chautauque County, N. Y. Trees said to be vigorous growers and abundant bearers.

No. 2. Very large, round, yellow color, with a deep blush; flavor sub-acid, quality medium; a very showy apple, and is known as the Fall Pippin, but is unlike our apple of that name.

No. 3. Medium, flat, dark red and spotted; flavor sub-acid, and quality good. Known as Hubbardston Nonsuch, but unlike those grown here.

No. 4. Known as "Sweet and Sour," varying in size from a small

yellow "Talman's Sweeting," to a large green Rhode Island Greening, on the same tree, with every imaginable combination of those two sorts, even to alternate segments strongly marked in the same apple, both as to color and flavor; the segments of "Talman's Sweeting" being sweet and of a yellow color, and depressed, whilst those of Rhode Island Greening were prominent, and of a greenish color, and decidedly sour. This very curious anomaly is said to be the result of dividing the buds of each of these two sorts lengthwise and joining the two halves very accurately, and inserting them as one bud in a growing stock. The parts thus joined grow as one bud, and the result is the tree bearing these curious specimens, and the grafts of which reproduce the same results. This opens a large field for experimenting in this way, and there is no reason why different colored Grapes, Pears, &c., could not thus be joined together, if not by budding, perhaps it might be accomplished more readily by inarching, when the two sorts could thus be brought together. The thanks of this Society are due to Mr. Blodgett, for the interest he has manifested in thus bringing these desirable and curious Apples forward for our inspection.

REPORT OF THE COMMITTEE ON FRUITS.

Best 6 Varieties of Pears, to Edwin Satterthwait: Easter Beurre, Beurre D'Anjou, Lawrence, Urbaniste, Vicar, Doyenne D'Alencon.

We also notice 3 varieties of well grown Pears from S. W. Noble: Vicar, Easter Beurre, Lawrence. Also fine specimens of the Baldwin, and Ridge Pippin Apple, from the same. They also acknowledge the receipt of a bottle of wine made from the Philadelphia Raspberry, from A. L. Felton.

REPORT OF THE COMMITTEE ON VEGETABLES.

Best 6 Stalks of Celery to F. O'Keefe, gardener to J. Heyl.

Fine display of Vegetables, special premium of $1 to T. Meghran, gardener to J. Ripka.

Best 6 Lettuce to F. O'Keefe, gardener to J. Heyl.

A special premium of $1 to F. O'Keefe, gardener to J. Heyl, for some fine Mushrooms.

We also notice some fine Lettuce by Jacob Huster, gardener to George Harrison; and fine Endive by T. Meghran, gardener to Mr. Ripka; and fine Cauliflower, by A. L. Felton.

On motion of Mr. Mitchell, the Fruit Committee were instructed to ascertain the price of models of Fruits, and report at next meeting.

AMOUNT OF PREMIUMS AWARDED DURING THE YEAR.

E. R. Hibbert,	$160	Chas. Harmar,	4
Donald McQueen,	144	Chas. Winfield,	4
William Joyce,	71	Geo. Nichols,	4
A. L. Felton,	54	Richard Norris,	4
Francis O'Keefe,	43	Philip Syng,	4
Daniel Robertson,	38	John Pollock,	3
Walter Bailey,	27	John Ellis,	3
Henry A. Dreer,	26	John Churchman,	3
Edwin Satterthwait,	24	Nathan Leeds,	3
P. Mackenzie & Son,	19	Mrs. Chapman,	3
Gebhart Huster,	19	James Colder,	3
Robert Buist,	18	C. B. Ott,	3
Thomas Meehan,	17	Gerhard Schmitz,	3
Ellwanger & Barry,	17	Geo. Williams,	3
Mark Reeves,	16	R. Robinson Scott,	2
Jacob Huster,	13	D. W. Herstine,	2
Geo. Huster,	12	P. S. Bunting,	2
Daniel Curtin,	12	C. P. Hayes,	2
D. Rodney King,	12	Mrs. H. Kraitser,	2
Peter Raabe,	12	S. Macferran,	2
William Fowler,	11	C. Moffet,	2
John Sherwood,	10	Mrs. A. Phillips,	2
F. F. Merceron,	9	Mrs. E. K. Tryon,	2
W. J. Young,	8	D. W. White,	2
James Astley,	8	D. McCallum,	1
Mrs. A. J. Catherwood,	8	J. S. Collins,	1
Samuel Greasley,	8	G. M. Kohl,	1
George Simpson,	7	C. Fox,	1
A. W. Harrison,	7	C. S. Allen,	1
A. L. Pennock, Jr.,	7	J. McLaughlin,	1
Thomas Meghran,	6	Caspar Duhring,	1
William Sutherland,	6	G. W. Earl,	1
William Parry,	6	S. C. Borden,	1
Chas. Crucknell,	6	C. S. Esher,	1
J. E. Mitchell,	6	J. T. Fuss,	1
Joseph Gœhring,	6	John Gray,	1
Mrs. E. Harris,	6	John Gurney,	1
John McGowan,	5	J. Kinnier,	1
Hugh Graham,	5	J. McDonald,	1
Robert Scott,	5	Robert Salisbury,	1
Mrs. A. Williamson,	5	H. Williamson,	1

ESSAYS.

PROPAGATION OF PLANTS BY CUTTINGS.

BY PETER HENDERSON, JERSEY CITY, N. J.

Read February 7, 1865.

I do not know that I can present any thing new on a subject that has been so often discussed; but, although I have but little new to offer, I will endeavor to simplify an interesting subject that too many gardeners, either intentionally or through ignorance, try to surround and befog with mystery.

My manner of constructing the propagating-house having already been given in the *Gardener's Monthly*, I need not here repeat the description; I will only say in this connection, that any one who understands the conditions on which cuttings root, can accomplish the work by a hotbed, or along the front bench of a greenhouse, with the flue running underneath, with perfect success; although he could do so more rapidly and with less attention in a propagating-house, fitted up with all the "modern improvements." While, on the other hand, the gardener that goes to work without a knowledge of these conditions, though provided with the best propagating-house that ever was planned, will most certainly fail, or, at least, will not have that unvarying success as the man who knows his business ever should have.

Propagation by cuttings is always most successful between the months of October and April, from the fact that during that period we have the necessary low atmospheric temperature, that I will endeavor to show is necessary to complete success.

Our favorite system of propagating is by using cuttings of the "young wood;" that is, young shoots that are formed by starting the plant in a greenhouse temperature, averaging from 40° to 60°. The proper condition of the cutting is easily determined by a little experience. In the case of Roses, the best are "blind shoots;" that is, the short shoots that do not show flower-buds; and time when they are of the proper degree of hardness is determined by the flower-buds on the plant just beginning to develop. But with bedding-plants, generally, we never can get the cuttings too soft, provided that they have not been grown in a high temperature,

and without air. The tops of the young shoots are always best, although, if an elongated shoot is soft enough, it may be cut into sections of one or two inches in length.

In making cuttings, preparatory to being inserted in the sand of the bench, it is of no importance whatever to cut immediately below a joint, as three out of every four of the gardeners we meet still think it necessary to practice.

In making cuttings, our custom is entirely the reverse of that practice, as we cut usually as much below a joint as the cutting is inserted in the sand, —generally something less than an inch. This is done as a matter of economy, both of time and material, as it is much quicker done, and more cuttings can be so obtained than by cutting at a joint; they are also easier planted in the sand; for, in putting in cuttings of any kind, we never use a "dibber," merely pushing the cutting down to the first leaf, when hard enough to bear it; when too soft, lines are marked out in the sand by a thin knife, so that the soft cuttings may be inserted without injury; they are then watered with a fine hose, which compacts the sand sufficiently firm.

I now come to what I have long considered as the only "secret" of successful propagating, namely, the *temperature;* very simple to give a rule for, but still somewhat difficult to keep to that rule without too much variation.

Soft cuttings, or cuttings of the young wood, should have a *bottom-heat* of from 65° to 75°, and the *atmosphere* of the house should be always, when practicable, from 10° to 15° *lower*. If this is strictly adhered to, you are just as certain of a crop of healthy-rooted cuttings, in from ten to twenty days, as you would be of a braird of peas or radishes in May. But let once these conditions be deviated from for a single hour, by allowing a dash of sun to raise the temperature of the house or frame to 85° or 90°, then the soft unrooted slip will "wilt," its juices being expended, the process of rooting is delayed, and, if the "wilt" has been severe enough, entirely defeated. The same caution is necessary in applying the "bottom-heat;" for, if fire is applied indiscriminately, without regard to the weather, it will be found that you will run the temperature of the bench above "the point of safety," (75°,) and, in proportion as this has been exceeded, so in proportion will be your want of success. It is true that some cuttings will stand a higher temperature than 75° bottom-heat, (grape-vines, perhaps, 10° more,) but with plants in general, it will be better to let 75° be the maximum.

In the propagation of Roses, etc., by cuttings of the old or hard wood, less attention is required; but success is not always so uniform, nor, in my opinion, are the plants so obtained quite so good as those made from cuttings of young wood. We prefer to place old or hard-wood cuttings in the north or west side of a house, or, in fact, anywhere where they can be kept the coolest without being actually frozen. Any attempt to apply bottom-heat to the degree used for soft cuttings, will almost certainly seal their fate. The temperature of the house may range from 40° to 60°.

I will now say a word in relation to the *sand* or *compost* used for propagating cuttings. I know there is considerable difference of opinion on this

subject: almost every propagator having his preferences. My opinion is, the color, or even the texture, of the sand or compost has got nothing to do with the formation of roots. Experiments have satisfied me, beyond all doubt, that the sand or compost is only a medium to hold the moisture.

Experiments with *pure water*, *saw-dust*, *charcoal*, *brick-dust*, and *sands* of all *colors* and *textures*, showing that cuttings placed in each, in the same temperature, rooted almost simultaneously, and equally well. There is rarely ever any deleterious substances in sand, unless saline matter in that taken from the sea-shore, which had better never be used when it can be had from anywhere else. Many of my nurserymen friends I know to be victimized to a ridiculous extent in this matter, by freighting sand hundreds of miles to suit the caprice, or *temporarily* hide the failures of their propagators; for, for the want of success in two cases out of three, the sand is made the scape-goat.

The most insidious enemy to cuttings is the spider-web-like substance, which now, by common consent among gardeners, is called *The Fungus of the Cutting Bench.* Whenever this pest is seen, it may be taken for granted that the temperature has been *too high*, and the atmosphere too close. The remedy is to raise the sashes enough to allow the exit of the heavy atmosphere, which will, at the same time, *lower* the temperature. I have observed that the "fungus" can never exist to injure in a temperature below 50°.

Before closing, I will briefly advert to a simple process of rooting cuttings, which is, by far, the most convenient for amateurs, or for professional gardeners, who have no regular propagating-house. It is what is known here as the "Saucer System." It consists simply in filling plates or saucers with sand; the cuttings are then inserted, somewhat closely together—from an inch to two inches apart; the plates are then watered, so that the sand gets into a half-liquid state; then placed in the parlor-window, or stage of the greenhouse, *entirely exposed to the sun, and never shaded.* All that is further required is, that the sand must be kept in the *condition of mud* until the cuttings are rooted, which will be in from ten to twenty days, according to the temperature or state of the cuttings. Great care must be taken that they never get dry, or the whole operation will fail. This is a very safe method of rooting cuttings, and one that, during hot weather, is preferable to all others.

EVERGREENS AND HEDGES.

BY THOMAS MEEHAN, GERMANTOWN.

Read March 7, 1865.

"Evergreens and Hedges" is a very broad subject, and a very suggestive theme. I can do no more than invite your attention to a few of the most interesting matters connected with the question, and direct your thoughts toward a few points which it will be more proper for you to discuss than for me to fully enlarge on.

It is usual with lecturers, at the beginning of their discourse, to "start fair," as they say, that all may be clear as they go along. They would expect me first to take up the inquiry, "What are Evergreens?" Your intelligence will not allow me to enter on this course; but I may be permitted to describe some of the principal divisions and classes of Evergreens.

Strictly speaking, there are no Evergreens,—or, to put the point from the opposite view, if there are Evergreens, all plants are evergreen. The difference is simply, that some plants retain their leaves for four months, others six, some twelve, and a few two years, or occasionally a little more. The Horse-chestnut will retain its leaves in our climate but little more than four months, while the Southern Water-oak (*Quercus aquatica*), in Pennsylvania, is green till near Christmas. The leaves of the Mahonia and Holly are evergreen for about thirteen months, the White Pine for about fifteen, the Norway Spruce for about three years, and the Auracaria or Chili Pine for a number, perhaps ten or more. An evergreen, then, means simply a tree that, in every month of the year, has green leaves on it. As a new set of foliage appears every twelve months, those which retain their leaves green thirteen, will be what we call evergreens.

The chief divisions of evergreen trees are into broad-leaved evergreens, and the coniferæ.

The broad-leaved evergreens are such as the *Euonymus japonica*, *Rhododendron*, *Kalmia*, *Mahonia*, and so on, which require, for their full development, a moist climate, which we have not. The coniferæ take their name from the conical fruits or cones of the Pine tribe, and not from the shape of the trees, as many suppose, for their outlines are often other than conical. But all the coniferæ have conical fruit; not only Pines, but Arbor-vitæs, Yews, Cypresses, Junipers, and others like them,—all with a turpentiny or resinous sap,—are in the coniferous tribe.

The broad-leaved evergreen always seemed to me to be the better half,—the fair lady of the vegetable creation. Her taste—the taste of woman for adorning herself—is ably matched by the glorious foliage of the broad-leaved evergreen tree; and woman's beauty and accomplishments, the sweetness and purity of her nature, and the chaste and refining influences she casts around about her, are very nearly rivalled by the gorgeous touchings of the Rhododendron, or typified in the delicious sweetness of the Cape Jessamine, the Myrtle, or the Bay. They have also woman's nature over again. By themselves, apart from the fostering care of something stronger than they—alone in the cold, windy world, where the vigorous, man-like deciduous tree cannot shelter and protect them from the rude hand of winter, or the cold touch of severe frost, they seem to sicken and pine away, and never have that singular beauty and effectiveness as when growing in the shady groves and cosy sheltered spots Nature designed for their peaceful homes and lives. Occasionally we find a strange specimen of a broad-leaved evergreen, like a strong-minded woman, that seems to delight in standing out alone, and paddling over the sea of life, as it were, by herself in her own canoe; but I have always noticed, that, should some commiserating gardener, in spite of such odd perversity, remove the wayward plant to more favorable quarters—marry it, so to say, to a nice, rich, shady spot beneath the strong arms and umbrageous protection of some deciduous tree, it never seemed to want to go back to its lonely state again.

In the evergreen Ivy, particularly is the beauty of feminine dependence illustrated. It towers and twines itself around the loftiest ambition, or creeps over the lowliest heart. What the poet says to the Ivy we may say as truly of woman—to either as to the one:

"High from the fields of air look down
Those eyries of a vanished race,
Where harp, and, battle, and renown
Have passed, and left no trace;
But thou art there serenely bright,
Meeting the mountain storms with bloom,
Thou, that will climb the loftiest height,
Or crown the lowliest tomb!
Ivy! Ivy! all are thine—
Palace, hearth and shrine."

The ancients seem to have been struck by the comparison in reference to the Ivy, as I have been to the whole race of broad-leaved evergreens; for in Greece the altar of Hymen was always surrounded with Ivy during the marriage service; and a sprig of Ivy was presented to every newly-married pair, to signify that *he* should support her as the oak, and *she* cling to him until forced by ruthless death or violence to part. Beautiful, indeed, is the Ivy emblem in this case. Not even the death of the tree can force the tender and loving Ivy from it. It still clings to its memory long after life has left the trunk, and while a particle of the ideal form remains.

I have said broad-leaved evergreens are not well adapted to severe, dry climates, or dry, exposed places. Such a large mass of foliage is favorable to heavy evaporation,—is a source of loss of heat.

When we say that an evergreen is not entirely hardy—that it has been killed by the winter—it amounts to nearly the same as if we were to say it has been unable to maintain its heat.

The Rhododendron is a beautiful natural thermometer. When the temperature is above the freezing point, the leaves are perfectly flat and plane; with about five degrees of frost, the leaves reflex a little; when the thermometer is about ten or fifteen, there is a curl to the leaves, and when zero is about reached, they hang flaccid by the stems, and as completely twisted as a Grecian curl. This curling and twisting seems like the struggles of a thing of animal organization; for let the glass once get so low as to put out the fire of life in the plant, and the leaves immediately expand as if there were no frost—more beautiful, indeed, than in their living state; just as we see in our own dead a singular beauty spread over the features for an hour or so after the death-struggle is over, and the spirit is flown never to return again.

Although not strictly within the subject, I may here observe that this wonderful subject of heat in plants has not received the attention of vegetable physiologists that its importance merits. There is room for many discoveries that I have no doubt would have a very important bearing on skillful horticulture. Almost the whole of what we know of vegetable physiology is derived from English works. We have had few observers in our country, and with such a very different climate, many new facts would certainly be observed that would modify conclusions founded on

imperfect data. For one instance: It is laid down as a rule by Lindley, that the root fibres of plants are growing all winter, and absorbing moisture continually, "except when encased in frost." Now I except to this exception. I have satisfied myself that roots absorb moisture even when entirely and absolutely encased in frost. I have seen a Grape-vine forced. when the plant was under glass, and the stem and roots outside; when there were eighteen inches of frost in that vine border, and all, or very nearly all of those roots encased in that eighteen inches of frost. I have seen this vine grow and do well. Your Maple trees also, which you well know store sap up continually throughout the winter, until in February, the slightest scratch will make the liquid flow down their trunks in streams; will do this just as well in ground penetrated the deepest by frost, as where the greatest protection to the roots is given. But the most singular point is in reference to Hyacinths, Snowdrops, Crocuses, and other Dutch bulbs. We may plant them four or six inches deep in December, and the frost may occur immediately—the following day if you like—deep enough to thoroughly encase the bulbs in rock-like firmness: and this frost may continue, without an hour's intermission, in all its solidity, till the first warm thaw in March, yet we shall find that the bulb has pushed its way through the frozen earth entirely to the surface; and is ready to open its blossoms before the thaw has scarcely had time to penetrate an inch of the frozen soil beneath.

I am not able to explain to you how vegetation is able to do this; but to hazard a guess, I may suppose that the natural heat of the vegetable substance, which it is one of the main objects of life to supply as it wastes away, is given off just sufficiently to keep the very closest earth in compact with it thawed; and so, in effect, we may say the plant thaws its own way through the frozen soil as it grows.

Although rather a bye question, this one of natural heat, it has a bearing on the proper time to transplant evergreens. English works, acting on the principle before referred to, that roots grow all winter when not actually encased in frost, infer that, therefore, the fall is the best time to transplant evergreens, because the roots have all the winter to store up moisture ready for spring operations. But, although this practice is found to work well in England's climate, it has proved the opposite here; and the reason is plain, on the theory already advanced. The moist climate of England is not favorable to great evaporation, hence the mutilated roots, though limited in their capacity to supply food to maintain the heat lost by evaporation, can still do it successfully; while with us evaporation is so rapid, that the plant which would live and do well there, though transplanted precisely the same way and time, would here very soon dry up. But it is found in practice, that if we transplant very early in fall, so as to give the roots abundant time to develop themselves freely before the trying time of winter comes, they will do very well indeed.

This, in fact, is the whole secret of successful transplanting of evergreens, namely, to plant them at a time when the roots will push freely at once, and when there is not much evaporation likely to go on until the roots do push. This rule, you see, will vary with the climate. Where the winters are very mild, and there will not be much evaporation going

on, transplanting can be proceeded with all through the season; but in such climates as this of ours, the two most favorable seasons will be October and May.

Another subject connected with evergreens is pruning. There may be a great beauty in what we call a natural look to a tree, which pruning will often destroy. There is a beauty in the natural growth of a tree which no art can wholly make up. That pruning which spoils this natural beauty I would strongly oppose; but there is a system of pruning which favors nature; and brings out a development of beauty which is rather the perfection of natural form than a violation of it.

The true beauty of an evergreen lies in a vigorous, luxuriant growth, and yet not such a vigorous pushing out as consists of only a few strong branches here and there; but a thick and full growth, strong and bushy—*fat*, as we might say—not a huge, mammoth skeleton, remarkable only for its large bones, but well filled with firm flesh, of a healthy hue. How to get this thick and full set growth, and yet not interfere with the tree's vigor, is the real aim and object of evergreen pruning.

It is any easy matter to train a young evergreen into a handsome tree. It is simply by pinching out the points of the young growth after it has started in the spring. They push out, as you know, points like the ends of gas burners, usually in May and June. The sooner one can pinch the better; as soon as they are, say one and a half inches long will do, then pinch off about half an inch. Another bud will form for a leader near where the point is pinched out, and the most prying eye will not be able to note in a year or two's time that the tree had lost its leading bud; and in addition many new buds will be formed, which will make next year the bushy shoots that are to fill up naked limbs with thick foliage.

The chief thing to be remembered in this operation is, that you may never pinch out strong side buds, unless the bud of the main central shoot is pinched out at the same time. The effect of pinching strong shoots is to weaken them, and make weaker unpinched shoots strong. As the central shoot is always the strongest, if that be not pinched it will only grow stronger, and instead of adding vigor to the side shoots, they grow weaker as the central one pushes strongly away.

Almost all who fail in getting good results from pruning evergreens, do so from forgetting this simple rule. To repeat it again, never trim or stop the side shoots unless the main or leading shoot is cut or pinched back at the same time.

But supposing we have a tree already of considerable size, that has been somewhat neglected, and is not at all the beautiful, thick full-branched tree we would like it to be. The problem is how to bring it to the condition desired. Still, by cutting its head out—no matter how low down—to within a few inches of where some likely shoot strikes out, which is to be tied up to the stump to form a leader, and the stump, after a year or so, cut clean away, so that the bark can soon grow over and heal the wound. The side branches can have the principal ones cut away, and treated in the same way; or simply by cutting out the centre points of all the branching shoots.

There are a few evergreens that are either new or not well known, but

yet are so very desirable that it may serve a useful purpose to name them here.

Among the Fir tribe, the Siberian Silver Fir (*Picea pichta*,) is very hardy and very beautiful; it is truly an evergreen—a bright, shining, glossy evergreen; for many, as you know, have a rather fuscous tinge in winter time. Among Spruees the Menzies' Spruce (*Abies Menziesii*) is a magnficent thing; the silvery under-surface of the leaves is freely exhibited, through the habit of the shoots being somewhat erect; and in contrast with the green upper surface, presents an appearance that always interests the commonest beholder. The Douglass Spruee (*Abies Douglassii*) is another admirable plant. In summer, when the growth is not fully mature, the plant at a little distance seems enveloped in a strange mistiness, which gives it a sort of fairy elegance none other has. Of the dwarfer trees, *Cupressus Lawsoniana aud Thujopsis borealis*, are admirable evergreens, and among those of still dwarfer growth, the *Thuja ericoides*, best of the hardy dwarf evergreens ever introduced.

I have left myself little space to speak of hedges. Taking all things into account, the American Arborvitæ is the best evergreen hedge plant. No matter how old it is, it has always a tendency to keep furnished with foliage to the ground, which is essential to a good hedge plant; and as it grows slow, and conically, it can be kept in trim with little care or cost. The Hemlock Spruce is more graceful than the Arborvitæ, but being naturally a tree, with a tendency to lose its lower branches, if in the slightest shade, it takes more science, skill, and labor to keep it in order. The Norway Spruce makes an admirable protective evergreen hedge, if allowed to have about four feet of a base, and trained to a truncate form; as, indeed, all evergreen hedges should be. The Siberian Arborvitæ makes a very beautiful dwarf hedge, where a border or mere division is desired, rather than a full screen.

When asked to address you on *Evergreens and Hedges*, I supposed evergreen hedges were merely meant; I will, therefore, close by observing that the Holly, White Cedar and Red Cedar, have also been used for hedge purposes, but have not achieved, from various causes, the popularity of those above named.

PEAR CULTURE.

BY ROBERT CORNELIUS, ESQ., PHILADELPHIA.

Read April 4, 1865.

Those persons who have chosen for themselves a home in the country, almost invariably look forward to the time when they will have an abundance of fruit, including the choicest variety of Pears.

They have reason to expect this, as they have seen and tasted some of the best that are grown; and as the Pomological Society aids them in recommending certain kinds for cultivation in different localities, they are encouraged to make a beginning.

After reading the different standard works, and obtaining from friends the preliminary information, they purchase, as they suppose, a very choice selection of trees, which are planted after the most approved method, and success is confidently expected.

The result does not in all cases confirm the expectations, and as the trees do not grow as desired, they reason very naturally that the act of transplanting has retarded the growth of the first year.

The second year, however having passed by, they are again disappointed, as trees have not flourished according to their reasonable expectations. They, therefore, come to the conclusion that the stock could not have been in a healthy condition when first received, or that the proper mode was not adopted in planting; or that the soil or situation was not of a kind suitable for their growth. Feeling a little discouraged, and not knowing exactly what to do, they observe that some trees have grown much better than others.

With a strong determination to overcome difficulties, they again carefully examine their orchard, and, without considering expense, give to each tree a new treatment, which they hope will cause it to flourish.

Having now done all that can be thought of, their expectations are great for the following year. The trees again put forth their leaves and branches in early spring, but are not much larger at the end of the season than of the year previous. Pear culture is, therefore, considered by them a precarious undertaking.

Although some persons are not successful in their cultivation of the Pear, many have realized their expectations.

The following plans, adopted by one of the latter class, are recommended as suited to this locality:

The mode of operation is to select a piece of ground which has formerly produced good crops, or one which is in a condition to do so. He prepares it by working it well to the depth of eighteen inches; and in case the ground is heavy or wet in places, underdrain, so that whatever water may fall will not long remain, but will pass freely by, and thus constantly renew the supply of air and moisture to the rootlets. No manure is added to the soil immediately before or at the time of planting, if the ground is in the condition above referred to; but the remedy in case the soil is poor, is to top dress, which can be done at any time after the tree has formed new rootlets.

Stocks are selected of one or two years old from the bud, or before they begin to form fruit spurs, and are placed in the ground in the fall, at the proper distance apart, and at about the same depth as formerly grown. During the month of March, or before the buds begin to swell, he cuts from each branch about one-half of the growth of the previous year, which gives greater vigor and prevents a slow growth—the cause of short spurs.

Some trees when young, are prone to produce spurs, and little wood; but by close trimming in the spring, the spurs are not likely to form, and the branches grow a reasonable length.

During the period of growth, the ground is kept free from grass and weeds, and in a loose and friable condition. The trees at the end of the

season are all that can be desired. During the winter months no material is permitted to be around or near the tree which would form a harbor for mice, as they select the bark to feed upon when other food is not easily obtained.

In the following spring the tree is subjected to another trimming, which gives it a proper form and a growing condition, and renders a similar treatment unnecessary in subsequent seasons. In trimming, preference is given to that form of tree with one central stem or leader; its length is reduced one-quarter. Each of the side branches is cut so that the ends shall be below the top of the leader six or twelve inches according to size of the tree; and if other limbs are below these they are shortened in like manner. As there are buds on the upper and lower sides of the branches, and it is desirable to have an erect growing tree, rather than drooping, the branch is cut off just above the bud, facing the leader, and not that on the lower part of the limb.

Most of the trees thus prepared will require very little subsequent attention; especially those which are naturally inclined to a regular and upright growth; but some may need a little further care, as, for instance, where the second bud from the end of each branch, and particularly the leader, has a strong tendency to be equal to the one above. The growth of this branch should be stopped when a few inches long, and the sap will then be transferred to the branch above.

Many persons hesitate to remove as much wood from a young tree as is necessary for its healthy development; when, in fact, the application of the knife, freely, with judgment, and at the proper time, accomplishes more for its prosperity than quantities of manure so frequently and improperly used.

When the tree arrives at a proper age, the spurs enlarge, the blossoms set, the fruit follows, and the tree is in a condition to insure its future prosperity.

It gives me pleasure to furnish to the members of the Horticultural Society the above results of personal experience, extending over eight or more years, and I trust that they may encourage others to persevere in the raising of this deservedly favorite fruit.

THE ODORS OF FLOWERS.

BY A. W. HARRISON, ESQ., PHILADELPHIA.

Read May 2, 1865.

Among all the harmonies of nature, those which afford the most universal delight, which are appreciated and enjoyed by the most lowly, as well as the most refined, but whose laws are dimly shadowed forth, and, as yet, unwritten in the book of knowledge, are the accords of fragrance,—the harmonies of sweet odors.

That these harmonies are governed by laws as fixed and beautiful as those that rule the play of colors in the prism, or the vibrations of sound and the relations of the diatonic scale, is a thought that must suggest

itself to every discerning mind. Yet, while the latter have been the subject of profound study for ages, and have engaged the earnest thought and experiment of the artist and the man of science; but little, comparatively, has been done to develop the principles, and from them to deduce the laws which govern the actions and relations of those intangible, ethereal essences that affect, pleasurably or offensively, the olfactory nerve; that fill the air we breathe; that give their peculiar savor to the fruits, the viands, and the beverages we consume; that form an ever-present feature of our daily life.

The three elements of floral beauty are color, form and fragrance. The flower which combines these elements in the fullest proportion, is the Rose, whose pure and penetrating odor has been regarded, from all time, as the type of all that was most delightful to the smell, most charming to the sense; it combines, in various and harmonious proportions, with a greater variety and number of odors, than any other elementary floral fragrance, and may, perhaps, prove to be the key-note of the future gamut of odors.

Next to this, in importance, is the Orange-flower. Its scent is powerful, pervasive, and universally pleasing to the cultivated sense. It may fitly represent the fifth, or dominant of the scale.

For the third, or mediant, we might select the Vanilla, and so on, to the formation of the perfect scale.

As yet, however, science has thrown but little light upon this theme, and we must be content with mere conjectures, which, if time shall prove unsound, may yet serve as guide posts on the true road to a knowledge of what is now only an interesting but mysterious and perplexing problem.

In the domain of sounds, there are some discords so harsh as to shock even the rudest ear; in the domain of odors, likewise, we sometimes experience sensations of displeasure and disgust, that cause even the coarsest nature and the bluntest sense to revolt against them. All these arise from violations of the great law of harmony, which governs the universe and rules the spheres.

On the other hand, a combination, in true accord, of pure sweet sounds, a harmonious blending of the rich, fresh odors of the living world, bring never-failing delight to the highest organs of our being; they soothe and refresh the wearied body and the exhausted mind; they bring happiness to the humble, and the most refined pleasure to the man of culture and the votary of art.

As I propose to treat this subject mainly in the light of practice, and in its relations to commerce and the arts, I will not dwell longer upon this train of thought, save to suggest the lesson which, as horticulturists and florists, we may learn from an honest study of the odors of flowers, and to point out some interesting facts, which have resulted from chemical research into the odorate principles of plants.

In the preparation of hand bouquets, baskets, table designs, and every form of floral grouping, while great attention is paid to the pleasing contrast of color and of form, the graceful disposition of leaflet and flower, the well proportioned outline and the artistic ensemble, there would seem

to be a comparative neglect, perhaps an absolute ignorance, of those principles which lead to the harmony of odors, and of that use of the means at our command which shall complete and crown the enjoyment properly afforded by these charming combinations of Flora's offspring.

At times, the most discordant and antagonistic elements are introduced; flowers yielding a perfume pleasing in itself, and combining happily with others of the same type and family, are placed beside others of a widely different and opposing nature; a harsh contrast ensues, and the result is displeasing to the cultivated sense. Let us study this feature more carefully, and let not the true and original intent of the nosegay,—to refresh and delight the sense of smell,—be lost sight of; but let fragrance of the highest type, whether simple or composite, be a distinctive, if not a leading feature in these beauteous decorations of our homes, and in the adornment of our festive scenes.

We have spoken of the Rose as the type of the highest fragrance. There are several other odors, mostly quite different in character, yet harmoniously combining with the Otto, or essential oil of the Rose, and in any desired proportions; such are the odors of Sandal-wood, Patchouly, Turkish Geranium, (used for adulterating the otto of rose), Voapivert, the Rose Geranium of our gardens, the rhode-wood, or Rhodium or Sweet-brier, and some others. The Orange-flower, too, has its kinsman in the Lilac, Magnolia, Jessamine, Seringa, Daphne, Hawthorne, and many more, which will suggest themselves to the inexperienced lover of flowers. Of a different class, nearly related in fragrance, are Verbena or Lemon trifolia, the Lemon-grass or Andropogon schœmathus, the Citronella, and the fruits Cedrat, Limette, Lemon, Orange and Bergamot. Again, the odor of the Vanilla-bean suggests itself plainly in the Heliotrope, Tonka-bean, and Gum Benzoin. In fact, the distinctive odor of the Vanilla is mainly due to the presence of Benzoic acid. In the best quality it is often seen in minute frost-like crystals on the surface, giving rise, in French, to the name "Vanille givrée," or frosted Vanilla.

The Tonka bean contains another odorate principle, called Coumarin, which is also the dominant odor in our Sweet Clover and Vernal Grass, and plays a leading part in the composition of the new popular perfume called New Mown Hay.

We have said that the *laws* which govern the relations and combinations of odors are till now undeveloped and almost unknown; yet, in the practice of the art of perfumery, some truly delightful harmonies have been obtained, the result of a naturally keen and delicate sense of smell refined by long culture and intelligent devotion to the art. As the musical composer, with only seven simple notes for his materials, brings forth the grandest combinations of choral harmony, and the painter, drawing his primary colors from the sunbeam, through a prism of molten glass, embodies the highest conceptions of beauty on the painted canvas; so does the perfumer, with a few simple elementary odors, arranged in accordance with a law of odor and of beauty, unwritten, yet not unfelt, produce an endless and ever-varying round of fragrant harmonies. To him the simple, sweet-scented flower is only a vehicle for the communication of odors to the nostril and the brain. He analyzes it as the composer analyzes a musical score, or the chemist a mineral compound. Like them, too, he

synthetises and combines; and from out his copper still, and the alembic of his brain, there come forth compounds of beauty, that seem due to an almost creative power, so wonderfully fragrant, so strikingly do they resemble the flower they counterfeit.

To him the apparently simple odor of the Heliotrope resolves itself into the elements of the Rose, the Jessamine, the Orange-flower, the Vanilla-bean, the root of the Florentine Iris, the Balsam of Peru, the Clove and the Bitter Almond. The pure and delicate scent of the Mignonette suggests the perfume of the Sicily Orange-peel, the Jessamine, Tuberose Acacia, Violet, and Vanilla-bean.

With his pallet (if I may use the phrase) of simple odors, she reproduces all the fragrant combinations of the world of flowers, and adds to them other harmonies purely ideal; yet, like a thing of beauty, they are a joy forever.

The limits of this Essay do not permit me to elaborate this train of thought as I would desire, and I will pass to the consideration of a more strictly practical branch of the subject.

Much interest has lately been excited by the lectures given before the Royal Horticultural Society of London, by Mr. Eugene Rimmel, and Dr. Septimus Piesse, on the materials used in the perfumer's art, etc., illustrated by the plants producing them, the principal mechanical apparatus employed, and the various processes adopted for obtaining and refining their essential principles of elementary odors. The animal world, too, was represented in the curious, powerfully scented tumor of the Musk Deer, the resinous exudation of the Civet Cat, and the granular hemmorrhoid of the Sperm Whale, known as Ambergris.

But the chief interest of these lectures was in their descriptions of the celebrated flower farms of southern France, which are the principal sources of supply of the finer floral odors consumed in the perfumer's art.

I visited the prominent seats of these manufactures in 1853, and from notes taken on the spot, I contributed to the *Working Farmer*, in 1861, the results of my observations. As they have probably met the eyes of few, if any, of my present hearers, I make no apology for now reproducing them, with such slight modifications as my topic suggests.

I would premise that the article was written mainly from a commercial point of view, as the writer, at that time, was an entire novice in horticultural art and knowledge, and was interested mainly in the manipulative processes.

THE FLOWER FARMS OF FRANCE.

The growing of flowers for the production of fine essential oils, and for medicinal purposes, is an important branch of horticultural industry in those departments of France bordering upon the Gulf of Lyons and the Mediterranean Sea, and especially in the southern portion of the Department of Var, adjoining the former Italian, but now French, province of Nice. There extensive factories in Nismes, Montpelier, Morbihan, Nice, and some lately established across the sea in Algeria. Smaller establishments are found at Mentone, and all along the Genoese Riviera; but the great

and acknowledged centre of this branch of industry, is the town of Grasse, situated about 75 miles E. N. E. of the Marseilles, a few miles inland, and its seaport Cannes, well known as the winter residence of Lord Brougham. It would be difficult to state, with any degree of accuracy, the product of the flower-fields of this interesting region. There are over sixty factories in Grasse, which is a flourishing place of 12,000 inhabitants, giving employment, in the various departments of field and in-door labor, to fully 5,000 persons. Many manufacturers grow their own flowers, others buy them daily in the market, and still others are supplied by contract. The latter system prevails among the leading houses. Contracts are made, at a fixed price for a term of years, for the total product of a farm, at rates varying from 8 to 10 cents per kilogramme (2 1-5 lbs.) of Rose-leaves, up to $1 for Tuberose-leaves, and even higher for Violet-leaves, the latter being mainly produced at Nice. The average prices are about as follows per kilogramme of 2 1-5 pounds:

Rose-leaves 8 to 10 cents the kilogramme.	
Jessamine-leaves 40 to 50 cents the	do.
Orange-leaves 50 cents the	do.
Acacia-buds 60 to 80 cents the	do.
Tuberose-leaves $1 the	do.
Violet-leaves 80 cents to $1.30 the	do.

These are the leading garden-flowers used in Grasse; only small quantities of the Jonquil, Narcissus, Hyacinth, Mignonette, etc., are produced. A great breadth of land is devoted to Lavender, Rosemary, Thyme, Sweet Marjoram, Cherry Laurel, Sage, Balm, and other medicinal and culinary plants, which are sold at much lower rates than the products of the above named flowers.

The preparations derived from all these plants divide themselves into four classes: Essential Oils, Distilled Waters, Pommades and Oils, and dried leaves and flowers. It is true that considerable quantities of Extracts of the Pommades are manufactured and sold, but they are generally of inferior quality, and will not compare with those produced by the great perfumers of Paris and this country.

The great *bulk* of Essential Oils produced consists of Lavender, Rosemary, Thyme, Sage, Spike Lavender, and Sweet Marjoram, all of a terebinthine nature. The most *valuable* products, of any considerable amount, are the Essential Oils of Neroli and Petit Grain. The former is the result of the distillation of Orange-flower water, from the petals of the flower of the Bigarade or bitter orange, (the sweet or Portugal Orange yielding a somewhat inferior product,) and the latter is obtained from the green leaves of the same tree. The price of Neroli varies, with the season, from $30 to $45 the pound, of Petit Grain from $8 to $12. These two oils are used extensively in the composition of Cologne water, and in combination with Bergamot and Rosemary, give its distinctive character. The Orange-flower water is consumed in immense quantities in France, in the "eau sucrée," so universally drank in the hot seasons; this, by the way, is the only form in which a Frenchman will drink water at all.

The Bigarade Orange tree also furnishes a rough skinned, bitter,

inedible fruit, from the rind of which is expressed an inferior oil called "Essence Bigarade," often used for adulterating the finer oils. The tree requires ten years to mature, and twenty to attain perfection, and yields an average of seventeen pounds of flowers per annum.

Rose-water is also distilled in large quantities. A result of its distillation is a very minute proportion of Otto of Roses of the very highest quality; it appears in small supernatant grains or drops, which are carefully skimmed off and rectified. It is superior to the famous Kizanlik or Turkish Otto, and, like it, congeals at ordinary temperatures in beautiful, transparent crystals. I saw, at the celebrated manufactory of Mr. Antoine Chiris, who was, in all things, the leader of his profession, a bottle containing about three pounds, which he valued at $550, or over $11 the ounce. It is not an article of export, the quantity produced being very small, but is reserved for use in unfavorable seasons, or a failure of the flower crop, to give strength and finish to the Pommades and oils. The "Rose de Mai," (*Rosa centifolia provincialis*), or double May Rose, is the one universally grown.

Another very costly article, of which less than an ounce had been produced in Grasse at that time, is the Essential Oil of Jessamine. Its existence in the flower was long and stoutly denied by the distillers, although they failed to prove what other principle caused its fine odor. In 1853 an Algerian chemist obtained a minute quantity, which cost him, we are informed, at the rate of 17,000 francs the kilogramme, or nearly $100 the ounce. It has, since then, been produced at a cheaper rate, but still too dear for commercial purposes. The wild Arabian Jessamine is grafted on the cultivated plant of the same species, acclimated, and bears for many years, if not winter killed, yielding from 90 to 150 pounds of flower petals per thousand plants. It is closely trimmed in spring and deeply covered in winter. The caterpillar is its most formidable enemy.

A most important branch, and one in which great rivalry exists, is the preparation of perfumed Pommades and Oils, which have a twofold use: first, as bases for the finer kinds of hair oils and pomatums, and next as a medium for obtaining spirtuous extracts for the handkerchief and the toilet; such as Lubin's well-known 'Extraits pour le monchoir.' Their preparation is the most curious and interesting feature of the Grasse establishments.

The Pommade 'body,' which is prepared in winter, is composed of 1 part of beef-suet, and 2 parts of leaf-lard, (except for Jessamine and Tuberose, which is mainly lard, hardened by mutton or veal-suet), thoroughly hashed, washed in several waters, and, among the best manufacturers, washed several times in Rose-water, to deprive it of all unpleasant odor, then carefully melted and stored away in huge tin cans, in airy, cool vaults, for use in the season of flowers. Another preparation called "corps dur," or *hard body*, is made of beef tallow only, and is used in the manufacture of stick pomatums. For the Oils, the inodorous virgin olive oil is used, expressed from olives just before their maturity.

The busy operations of the year commence with the Rose season.

There are two processes for impregnating the Pommade body, and the Oils with the floral odors,—one by infusion and maceration, the other by

what is termed 'enfleurage.' The first is employed for the strong, less volatile odors of the Rose, Orange, and Acacia; the latter for the sensitive, ethereal perfumes of the Jessamine, Tuberose, Jonquil, and all the bulbous plants, which will not endure the application of even a moderate degree of heat.

And first, by infusion. About 100 kilogrammes (220 lbs.) are put into a tin planished copper vessel, placed in a copper water bath, melted at a low temperature, and charged, at day-break, with a certain quantity of the freshly gathered flowers, which are stirred constantly during the day and night, the mass being kept only warm enough to maintain a semi-fluid state. About midnight it is removed from the fire, poured into strong bags, made of fish cord, and subjected to heavy pressure in large, perforated iron cylinders, standing vertically upon marble bed plates, which are gently warmed, to prevent the congelation of the exuding mass. Next morning fresh leaves are added, and the process repeated daily, until the desired strength of perfume is attained; the pommade is then poured into cylindrical tin boxes and sealed up for shipment.

The Oils are treated in the same manner as to maceration, but are filtered instead of being pressed.

The process of 'Enfleurage' is as follows: Large numbers of 'chassis' or sashes are prepared, about 2½ feet long by 1½ feet wide, the frame itself being 2 inches wide and 1½ inches thick, holding a stout plate of ground glass, and resembling in construction a large school slate. Those for the Oils are about 4 by 2½ feet, proportionately heavy, and, in place of the glass, have coarse iron-wire net-work. The large factories have several thousands of each of these frames.

Upon each side of the glass the Pommade is thinly spread, and the surface is channeled or furrowed with a four-tined square-pointed wooden fork, so as to present the utmost surface for the absorption of the odor from the flower-leaves, which are thickly sprinkled upon it. The frames are successively charged with flowers, and piled one upon another, up to the ceiling. The leaves, confined between two strata of pomatum, wither, and yield up their odorate principle, which is rapidly absorbed. Daily renewals of the flowers are made, until the proper strength is obtained. The perfumed Pommade is then scraped off very gently, melted in a water-bath, and poured into cans.

In preparing the Oils, coarse, heavy, spongy cotton cloths, made especially for this purpose at Marseilles, are saturated with olive oil, and spread upon the netted frames; flowers are then strewn thickly upon them, and they are piled up in like manner as the Pommade frames. When sufficiently charged with the odor, the oil is expressed from the cloths by powerful levers.

Many hundred weights of flowers and herbs are dried annually, are variously used in medicine, in cookery, and in the composition of scent-bags, cachous, fuming pastils for the sick chamber, and kindred compounds of the perfumer's art.

The Parmesian or double Violet is grown mainly at Nice, under the shade of trees, and yields a delicate and delightful perfume. It was the favorite odor of the Athenians under Pericles, and is now one of the most fashionble scents of the Parisian *beau mode.*

The flower farms receive the highest culture. Underdraining was not practiced at the period of my visit, but great attention was paid to irrigation. In some fields at Cannes there were complete net-works of irrigating tubes, substantially laid in cement. A constant warfare is waged upon insects, and each plant has its particular borer, grub, or bug. "Eternal vigilance is the price of" success.

The heat in summer is intense, though tempered by the sea breeze; and the winter is, at times, as rigorous as at Washington or Richmond.

Male labor costs 35 to 40 cents per day, and female 15 cents.

While visiting this interesting region of flowers, I was often inwardly reminded of the vast and undeveloped field in our own sunny climes, and of the possible future of commercial floriculture in the tropical regions bordering upon our Mediterranean Sea,—the Mexican Gulf. There the wild-wood teems with the fragrant Jessamine and Magnolia; the shady pastures are redolent of the timid Violet; the gardens load the air with the far-wafted perfume of the Rose and the Orange-flower, and every thing that is pleasant to the smell. But a blight was upon the people, and all the graces and beauties of nature were darkened by a pall of unrequited labor. It may not be a vain hope,—I trust it may prove a prediction to be soon fulfilled,—that when that fair land shall be fully redeemed from the lethargy, the paralysis of human slavery; when it shall be everywhere open to the intelligence and energy of the Northern mind, the free and self-reliant labor of the millions disenthralled, it shall then become the great flower-garden, not only of America, but of the world.

A GLANCE AT THE FLORA OF THE CARBONIFEROUS PERIOD.

BY DR. HORATIO C. WOOD, JR., PHILADELPHIA.

Read August 1, 1865.

One of the most curious and interesting discoveries of modern science, is that of the vegetable origin of coal. It has become so familiar to us,—we are so used to looking on great heaps of coal, and remembering that ages ago they were formed from vegetable matter,—that nothing can be more trite than this opening sentence. Yet it is a wonderful discovery; one that awakened strange emotions in the breasts of the earlier investigators, and carried them back, in fancy, to the untold ages buried in the abyss of the past,—to the waving forests and thick brakes of the olden time. In the light of more modern science, the fact is still more strangely interesting, as affording an unanswerable example of the indestructibility of a force. For whence did those plants receive the power to draw the immense mountains of carbon from the air and earth, but from the rays of the olden Sun. It takes no vivid fancy to see in the glowing, burning coal, the sunlight of a day long fled ere man was; for science, stranger than fiction, can actually measure the power drawn so long since from the

Sun, and stored away deep in the bowels of the earth, to minister to man's wants. This is not the place to do more than allude to this modern doctrine of the convertibility of force, and its indestructibility. It would be a pleasant task to show how the plant lays hold of the chemical part of the Sun's rays and binds them in its cells, making those wondrous little entities so many prison-houses of force. But our task to-night is with the Flora of the Carboniferous Period, and we must hasten on.

Although every school-boy is acquainted with the fact, yet perhaps it would be well to glance for a moment at the proofs of the vegetable origin of coal. Coal is more or less pure carbon. What is the great source of pure carbon to-day, laying aside the coal itself, but the Vegetable Kingdom?

If we subject wood to the action of a slow fire, in the absence of a sufficient supply of air, charcoal is formed, the physical characters of which you are all familiar with. Intermingled with the coal are found small masses of charcoal, closely agreeing in external appearance with that from the Jersey Pines. Further, in and all about the coal and vegetable *reliquæ* in vast abundance and endless variety; huge trunks many feet in length; innumerable impressions of ferns, seed vessels, fruits, leaves, roots, yea, sometimes the stumps of whole forests, and in one or two places on the coasts of Nova Scotia, the forests themselves, standing erect, imbedded in the solid rock. The Coal Measures are, in truth, Nature's herbarium, where she has stored the history of the botany of a wonderful period, a botany with strange, weird plants, worthy to grow side by side with the winged Saurian lizards, and huge, uncouth, ferocious sea monsters, which make our largest and fiercest reptiles seem but playthings.

The two crowning, decisive proofs of the vegetable origin of coal, are the following:—First, the fact that if thin slices of it are properly prepared and examined with the microscope, a peculiar structure is visible, so closely resembling that of existent plants, that we often can assert not only the source from which it has come, but even the classes to which the component parts belonged. Second, the circumstance that the first stage of the formation of coal is at present going on. Of this more will be said after the discussion of the climate and conditions under which the Carboniferous vegetation flourished.

Many things have been said and written about the climate of the Coal Age,—some of them more strange and wonderful than even the truth itself. Men have laid hold of the axis of the earth, and turned it to suit their purposes and theories. The great difficulty lies in the existence of coal in Melville Island, Lat. 75° N. The plants brought from that locality seem to be similar, indeed often identical with those found in our Coal Measures.

The inquiry at once arises in every thinking mind, how could these plants have lived and flourished in that region of ice and snow, that home of frozen death, cold winter's favorite resting place. The only plants which now grow there are the hardiest of the Alpine Flora,—even the Birch and the Willow are fain to content themselves with creeping along the ground, not daring to raise their heads more than a few inches into that chilling air. But the coal shows that a flora must have existed there

formerly, worthy to rival that of the tropics in its luxuriant abundance. Whence then the heat and light to foster and nourish such a vegetation? In order to account for the existence of coal so near the pole, Messrs. Lindley and Hutton, two of the most famous investigators in fossil botany, invented the monstrous theory, that the axis of the earth had a different inclination formerly from what it has at present. But where in Nature have we any evidence of such gigantic change,—a change which would involve in its influence not merely our globe and its satellite, but all our solar system. Let us then see if it is necessary to overstep the bounds of reason, to explain this problem. That coal could not at present be formed in those regions is self-evident. In that primeval age there must have been more light, and especially more heat there.

What is the great equalizer of the temperature of the earth at the present day? No doubt the air has much to do with the climate. No doubt it is the hot sirocco-breath of the Saharan furnace, tempered by great draughts in the Mediterranean, which gives southern Europe its genial climate, and ripens the grape on the banks of the vine-clad Rhine. But is not water a more powerful modifier of the temperature of a country than the air? It is a curious fact, that if you take a pound of water at 60° Fah., and a pound of lead at 60° Fah., and heat them to 120° Fah., you will find that it has taken about twice as much fuel to bring the water to that temperature as to bring the lead up. Again, if you take these heated bodies, and measure the heat given off during cooling you will find that the water has given off about twice as much as the lead. The thermometer does not indicate the amount but the degree of heat in a body, and water actually requires twice as much heat as the same weight of lead, to raise it to any given temperature. If you pour on a mass of granite a gill of water, the stone will at once appear wet; but pour a gill of water on a brick fresh from the kiln, and it will all soak into the brick, and, hide away in the interior, will give no token of its presence. The absorbing power of the brick is much greater than that of the stone. So it is with water and heat. The Creator has given to water a great power of absorbing heat and hiding it away in its interior. Is it not evident how this property fits it for being the great equalizer of the earth's temperature. It is notorious that in the winter the sea coast is not so cold as the inland, whilst in the summer it is not so hot. The reason of this is, that the water absorbs the heat of the one season, and gives it off to moderate the cold of the other.

Glance for a moment at a map, and you will see that the gloomy, frozen coasts of Labrador—the native home of the Seal and the Iceberg—is in the same latitude with the fertile England, with its mild climate and busy multitude of men. The great cause of all this difference is the Gulf Stream, that great oceanic river, ever flowing from the tropics and stranding itself on northern Europe. It is made up of millions of drops of water, and each sparkling drop is a little casket with its treasure of heat locked up within it. From the fierce burning sun of the tropics it receives it, and hurries away with it to make fertile and inhabitable the western shores of the Old World.

As water is thus the great equalizer of climates, the great distributor of

equatorial heat, it is easily seen that if the surface of the globe was almost covered with water, the extremes of temperature would to a greater or less extent disappear. Now geological facts indicate that in the Coal Period the greater portion of the earth's surface was covered with water, and that the land which did exist was low and marshy.

The key to unlock the mystery of the existence in high latitudes of the heat requisite to the growth of the coal plants seems to me to be found in this circumstance. The immense mass of water composing the almost universal ocean, was doubtless traversed in all parts by currents similar to the Gulf Stream, but on a still more magnificent scale,—and these it was which enabled the coal plants to flourish so near the pole. I have said nothing of the possibility of the crust of the earth having been warmed by the inner fires. This may have contributed somewhat to the growth of the Coal Flora, but how much, if at all, seems impossible to be judged.

The problem, how the plants received their supply of light, is not so easily solved. It is, however, by no means settled how far plants can endure the absence of light. According to Prof. Lyell, Palms flourish under glass in St. Petersburgh, 65° N. L., where the shortest days are only five hours long, and seem scarcely more than a glimmering twilight. How much greater departure from their normal supply of light these plants would endure is not known. But this fact certainly shows that they will bear much greater vicissitudes of light than of heat. Further, many of the congeners of the Carboniferous Flora, flourish in the darkest recesses of tropical primeval forests, where no sunbeam ever pierces through the thick foliage, but where a shadowy twilight is alone filtered through the dark screen of living green. If Palms, used to the burning sun of the desert, flourish in 65° N. L., how much further north can Tree Ferns, Club Mosses, etc., native denizens of gloom, exists? And is it not possible that the ancient flora may have had greater powers of enduring the absence of light than the modern allied families.

But there was undoubtedly more light in those northern latitudes formerly than at present. What is coal but carbon, and these millions of tons of carbon have come from plants which must have obtained them directly or indirectly from the atmosphere. Carbon can exist in the air only as carbonic acid. Therefore the atmosphere must have been in that ancient time very largely composed of that gas. Although this gas is so destructive to animals, yet it is a powerful stimulant to vegetation, and its superabundance must have been a great cause of the wondrous, luxuriant profusion of the Carboniferous Flora.

We know that, owing to the refraction of the atmosphere, the sun is seen by us when actually several degrees below the horizon. Now the refracting power of carbonic acid far exceeds that of either nitrogen or oxygen, singly or associated. In a latitude where the sun revolves for days a few degrees below the horizon, it is very evident what an effect this great refracting power must have had on the length of the days and nights. What a very prolonged twilight must have existed there. Taking into consideration these two thoughts,—the small supply of light actually necessary to the growth of some plants, and the prolonged twilights produced by the high refracting power of the carbonized atmosphere,

is it necessary to imagine that the world has turned a somersault, in order to account for the coal beds of Melville Island?

Although the ocean covered so much of the earth's surface during the Carboniferous Era, yet coal is not an oceanic deposit. No marine remains are found in it, either vegetable or animal. The plants out of which coal is formed must have contained a large proportion of lignin or woody fibre to have yielded so much solid carbon. Now seaweeds have singularly little of this in them. They are mere pulpy, fleshy masses, which, when dried, are but the shadow of their former selves. On the other hand the coal could not have been produced in a very dry atmosphere, for the Euphorbias, Cacti, etc., which flourish on dry inland table lands, are succulent, fleshy plants, composed very largely of watery juices, with but very little solid permanent tissue. Again, when plants die and fall to the ground in an ordinary forest, they gradually decay until all that remains of them is a black rich mold. Decomposition or decay is nothing but a slow process of combustion; and, as in that process, if a plentiful supply of air is at hand, continues until not only hydrogen, nitrogen, and other unstable elements are liberated, but the very carbon itself oxydized. To obtain the carbon by slow decay, just as to obtain it by rapid decay, *i. e.*, combustion, only enough oxygen must be present to consume the less resisting, more changeable portions of the wood. The only known method by which this can be done on a large scale in Nature is through the agency of water.

If you examine a log which has lain for years at the bottom of a pond, you will find that although a similar log on the shore would have crumbled in the same period into mold, yet it is hard and resistant, only blackened by the touch of time. The air has been excluded in great measure from it, and the carbon remains untouched. The Creator cognizant of this fact, has given a constitution to marsh plants, which peculiarly fits them for the formation of coal. They contain a remarkably large amount of woody fibre. Take the soft pliant sphagnum or bog moss, and delicate as it seems, it actually contains a large proportion of lignin,—will yield more carbon pound for pound, than the firm, hard giants of the forests.

It has been shown that coal has been formed under water, and this peculiar constitution of marsh plants would indicate that it had been formed in bogs or marshes, and not at the deltas of rivers. This is confirmed by many circumstances, among which are these two:—First, the fact that so many stumps and even trunks of trees are found standing in an upright condition, apparently just as they grew; Second, the immense length and breadth of some of the coal fields, coupled with the circumstance of there having been but so little land in those days, seem strongly to oppose the idea of their formation at the mouth of a river.

It seems certain, upon looking at all sides of the question, that there were immense swamps in the coal ages similar to the famous peat bogs of Ireland and other northern countries, and that it was in them that the depositions of carbon took place. The top of a peat bog is covered over by a luxuriant living growing vegetation, whilst underneath is an ever-increasing mass of dead, decaying vegetable matter. The plants which form by far the larger proportion of each of these are the mosses.

Upon examining peat taken from near the surface, it will be seen to consist of a matted, interwoven mass of stems and roots, blackened by incipient decay, but preserving their form and structure. The further from the snrface the more marked is the effect of the slow combustion, till at last a point is reached where the forms of the component plants are lost and the peat is reduced to a black, carbonaceous, spongy mass. Now this material needs only heat and pressure to form it into coal. It has actnally been dng out, dried, exposed to a great pressure and heat, and an artificial coal thus been made.

As impressions and even parts of individual plants are found scattered throngh the coal, so even in the fnlly formed peat, portions of many species of plants exist. The moss, however, never retains its strncture or form, but is converted into the black, uniform, carbonaceous mass, which constitutes by far the greater part of the peat. No traces of mosses have as yet been found in the coal. Does it follow from this that they did not exist in the Carboniferous Era. Much of the coal when examined by the microscope, does not exhibit any definite structure; and is it not very probable that it corresponds to the structureless portion of the peat in origin as well as constitution, and that mosses flourished abundantly in that ancient flora?

The plants that have written their history most profusely on the coal and surrounding shales are the Ferns. Everywhere are their traces visible. Sometimes a single frond, nicely smoothed out as though pressed for a herbarium; again, great piles of them, the fronds crossing, recrossing and intermingling with one another in endless confusion. Although, as has just been indicated, the abundance of structural *reliquæ* is an index rather of the indestructibility of the plant, than its pristine profusion, yet it cannot be doubted but that the filices held a very prominent place in the Coal Flora; their appearance must have been very similar to the tropical ferns of the present day. There are found imbedded in the coal huge trunks which have their surface fretted with very large, more or less semilunar scars. By means of the microscope, Messrs. Lindley and Hutton have been able to demonstrate that these were the trnnks of immense Tree Ferns. The ordinary frondose ferns were apparently much the more abundant then, as now.

Mr. Corda, some years since, described some peculiar *reliquæ*, which he called Psaronius. These are very abnndant in some localities; they are always in the form of a short, thick stump, with a thick, hard bark, whose surface is covered with a dense mass of rootlets. These, according to Prof. Lesquereux resemble, both in external form and internal strncture, the short root-stalks of some of the immense ferns of the Island of Java.

The study of fossil ferns is environed with almost insurmountable difficnlties. Very rarely is the fructification sufficiently well preserved for any characters to be drawn from it. In the hundreds of specimens which I have examined, there has not been one snch. The stndent is forced back on the form of the fronds, and the distribution of the nervules, both for family, generic and specific characters. For this reason, there is scarcely another stndy in Natnral History so uncertain and unsatisfactory. Different portions of the same plant often belong to different snb-orders.

The most strikingly beautiful of all impressions left on the coal are those made by the Lepidodendra. These plants were more closely allied to the Lycopodiaceæ or Club-moss family, than to any other living plants. The living representatives of this family do not attain to above a few inches in height, generally trailing on the ground. But not so with the Lepidodendra of the Coal Age. The remains of their trunks are often 20, 30 and 40 feet, or even more feet in length, indicating the immense size to which they attained. They must have been a very striking feature of that ancient flora, very probably, in some places, forming groves themselves, in others mingling with the conifers and tree ferns.

All through the Coal Measures are found in abundance sections of peculiar, long, cylindrical stems. These are remarkable for being articulated, with their joints very close together, and surrounded by a sheath, mostly formed of acute, closely set teeth. Their surfaces are generally caniculate, the channels or grooves often alternating at the joints.

These fossils are the Calamites of systematists. On account of their external resemblance to the existent Equistaceæ or Horse-tail tribe, they have been considered as allied to them. But recent investigations have revealed more truly and completely their history. The microscopical examination of their stems has shown that they were conifers; and the discovery of their fructification has confirmed this curious revelation. A peculiar form of vegetable *reliquæ* has long been known to be abundant in the Coal Measures, especially where the Calamites appear to have flourished. They consist of minute stems or branches most generally, but not always, simple, and beset at short intervals with whorls of linear, single nerved leaves. These leaves resemble more nearly the awl-shaped foliage of our Pines than that of any other existing plant. Now the perfected fructification of these plants has been discovered. It consists of compressed, apparently monosperous nutlets, which are generally more or less acute, often encircled by a narrow wing, and always situated in the axils of the whorls. The male flowers have also been found. They are terminal ear-like spikes, of appressed scales, enclosed in a mass of united appressed leaf-like bracts. These vegetable remains are the Asterophyllites of Brongniart. Various theories have been advanced as to their botanical relations, all founded on the premise that they were distinct, perfect plants. But these have all been disproved by the recent discovery that they are nothing but the branches of the Calamites. According to Prof. Lesquereux, these calamites were probably annuals, or, at least, short-lived plants, which grow up very rapidly. As they grew, they gave off constantly towards their summits these branches. The individual branches soon died, and were at all times easily detached from the parent stem. In the more perfectly preserved calamites the little scars left by them can still be seen around the joints. These stems probably grew in rich marshes, and very close together, forming like the bamboo of India, or our own southern cane, almost impenetrable brakes. The constantly shed branches and decaying falling stems, covered the surface of the marsh on which they grew, and furnished much carbon to the accumulating peat. Intermingled with the asterophyllites are found vegetable *reliquæ*, somewhat similar in appearance to them, but which are still thought to be the remains of

separate plants. I refer to the Annularias and Sphneophyllums. These are jointed branching stems, with verticillate leaves at the articulations.

The leaves are not so strictly linnear as the asterophyllites, and are very generally more or less wedge-shaped. A good deal of mystery still hangs about their botanical affinities, but Prof. Lesquereux considers that they were plants living on the mud; now partially immersed in the water, again running over the surface, much as the existent Ayola carolinian. On the other hand, their fructification has been discovered, and so much resembles that of the asterophyllites as to suggest immediately that they, like the latter, were merely the branches of some huge coniferous plants.

No plants of higher organization than the conifers have as yet been found in the Coal Measures.

FERNS AND MOSSES.

BY THOS. P. JAMES, PROF. OF BOTANY TO THE PENNSYLVANIA HORTICULTURAL SOCIETY.

Read October 3, 1865.

We do not propose to go back to the Cryptogamic flora, which clothed the earth's surface in times long past, and describe those gigantic Lepodendra and Sigittariaæ which geology teaches possessed the land anterior to the animal creation, but to confine our attention to the existing comparative liliputian vegetation of flowerless plants which form an interesting theme.

The study of the Cryptogamia plants when earnestly entered upon becomes absorbing. It is the remark of some author, that it is not surprising that any one whose mind in an ordinary degree susceptible of intellectual pleasure, can attain even to a superficial acquaintance with the structure and economy of Cryptogamous plants, without appreciating the enthusiasm which the prosecution of such investigations so generally inspire in those who make the study a speciality,—an enthusiasm in an inverse ratio with the apparent insignificance of the object.

The Ferns are the most beautiful and generally admired of this class of plants and being the most conspicuous are especial favorites with students. They constitute so attractive a portion of creation that no artist of the present day fails to introduce them in depicting a landscape; their graceful foliage and elegance of form serve to give the finishing touches to an admired work of art.

Of late years their cultivation has become very fashionable, especially under glass; and when introduced among the larger, flowering plants, in a green-house or conservatory, they add greatly to the attraction of the entire collection; indeed, without them it would be meagre and wanting in completeness. When grown by themselves, in a Fernery, from their beauty and great variety of forms, they present objects the most pleasing to the eye and interesting to the casual observer.

So universal has the cultivation of the Ferns and Lycopods become, that no lady, who has the least pretensions to taste and refinement, and has the leisure, is without a fern case or vase of these plants; and even in a phantomized condition they are objects of attraction. It is therefore eminently appropriate that a more intimate knowledge of the structure and development of the organs of these interesting plants should be disseminated.

To properly understand the subject, and give it position, it would be in order to remark that all plants in systematic botany are described under two general series, found on characters of the easiest distinction, viz.:

First Series—the higher one—embraces the Phænogamous or flowering plants, which produce real flowers, exhibiting stamens and pistils and seeds, which contain a ready formed embryo or young plantlet.

Second Series—the Cryptogamous or flowerless plants, embracing those of the lower or simpler grade, destitute of stamens and pistils, and in fructification producing simple cells or homeogeneous bodies termed spores from which originate the plant, no manifest embryo before germination.

The term Cryptogamia is derived from two Greek words meaning hidden organs of reproduction.

Class—*Acrogens* comprises those plant, which have a distinct axis, their stem and branches growing from the apex only, and which do not increase in diameter, containing woody fibre and vessels, and usually with distinct foliage.

The Order Equisetaceæ or Horse-tail family, are leafless plants with rush-like hollow articulated stems, of little apparent beauty, and therefore not cultivated, yet of interest in their structure. We pass this and proceed to the next order.

Filices or Ferns which consist chiefly of horizontal rhizomes or root stalks, and stipitate leaf-like expansions called fronds, which are mostly circinate or rolled up in the bud, and bearing on the veins of their lower surface or along the margins, the simple fructification, which consists of one-celled semi-transparent spore-cases—Sporangia—opening in various ways, and discharging the numerous minute spores.

To Ferns indigenous to this country will our remarks be confined.

The Order Filices is divided into three very distinct sub-orders or families; I. Polypodineæ; II. Osmundineæ; III. Ophioglosseæ.

The Polypodineæ—true Ferns—have the sporangia collected in dots, lines, or variously shaped clusters, called sori or fruit dots, on the back or margins of the frond or its divisions; stalked, cellular; reticulated; the stalk running into a vertical, incomplete ring, which, by straightening at maturity ruptures the membranous sides of the sporangium transversely on the inner side, discharging with some force, the spores. Fruit dots are often covered by a membranaceous scale, called the indusium or involucre, growing either from the back or margin of frond.

This family is divided into seven tribes:

1. Polypodieæ—which embraces two general Polypodium and Struthopteris.

2. Pterideæ—which enumerates four genera: Allosorus, Pteris, Adiantum, and Cheilanthes.

3. Blechneæ—which contains but one genus: Woodwardia.

4. Asplenieæ—embraces three genera: Camptosorus, Scolopendrium, and Asplenium.

5. Dicksonieæ—having one genus: Dicksonia.

6. Woodsieæ—which has one genus: Woodsia.

7. Aspidieæ—which enumerates three genera: Cystopteris, Aspidium and Onochlea.

Sub-order II. Osmundineæ. The flowering Fern family, has its sporangia variously collected, (large) destitute of any proper ring, cellular reticulated, and opening lengthwise by a regular slit. It is divided into three tribes:

1. Schizeæ—which embraces the two genera Schizæa and Lygodium.

2. Osmundeæ—which has only one genus: Osmunda.

Sub-order III. Ophioglosseæ. The Adder's-tongue family, has its sporangia spiked, closely sessile, naked, coriaceous and opaque, not reticulated or veiny, destitute of a ring, opening by a transverse slit into two valves, discharging very copious powdery spores; fronds straight, never rolled up in the bud. This family, with one tribe has two genera: Botrychium and Ophioglossum.

The Order Lycopodiaceæ. The Club moss family embraces a low form of plants, mostly of moss-like aspect, having solid and often woody stems, thickly clothed with sessile awl-shaped or lanceolate persistent simple leaves, bearing the two to four-valved spore cases, sessile in their axils. The indigenous are represented by two genera: Lycopodium and Selaginella.

Genus Lycopodium has spore cases of one kind, sporangia, resembling much those of Ophioglossum, only larger, and are coriaceous, flattened, usually kidney-shaped, one-celled, opening by a transverse line round the margin thus two-valved, discharging the subtle spores in the form of a copious sulphur-colored inflammable powder, familiarly known to pyrotechnists as Lycopodium, and used by them on account of its great inflammability. This genus is perennial, with evergreen, one-nerved leaves, imbricated or crowded in four to sixteen ranks, and embraces nine species.

Genus Selaginella has its fructification of two kinds, namely, of spore cases like those of the Lycopodium, but very minute and oblong or globular, containing reddish or orange-colored powdery spores; and of three or four valved tumid oophoridia, filled with three or four (rarely one to six,) much larger globose, angular spores, the latter either intermixed with the former in the same axils, or solitary and larger in the lower axils of the leafy four ranked sessile spike. Plants of this order are extensively introduced and cultivated in green-house and conservatories, and in great variety, possessing much beauty by their carpet-like covering, and spreading dendroid habit.

We now proceed to the consideration of the second division of the subject,—the *Anophytes;* which are Cryptogamous acrogenous plants, composed of cellular tissue only, but with the general type or habit of the superior orders, growing upwards by an axis or stem, emitting roots downward, and usually furnished with distinct leaves, sometimes the stem

and foliage confluent into a frond, and embraces the orders Musci and Hepatica.

The Order Musci. Mosses are low-tufted plants which emulate herbs and trees in vegetation and external appearance, and resembling an ordinary herb in miniature, exhibiting the general organs of root, stem, and leaves, arranged with as great regularity in their forms as the Phænogamous plants. They are by far the most curious and complicated of the Cryptogamia, having stems composed of elongated cellular tissue, strictly so called, chiefly in the form of parenchyma, a tissue composed of angular and polyhedral cells, at least they have no distinct vessels or duct, and no true wood in their composition.

Mosses take nourishment through the whole expanded surface, principally, therefore through the leaves; but the stems also shoot out delicate rootlets composed of slender cells which grow downwards, and doubtless absorb moisture.

The organs of fructification exhibit great diversity and more complicated structure than the Ferns. The two kinds of organs of fertilization have been long recognized, and their functions to some extent understood. The antheridium bears the same relation to the archegonium which the anther does to the pistil in Phænogamous plants. Fruit is never produced without the co-operation of both of these organs.

By fertilization a sort of pod is developed—the sporangium or spore case, which is filled with a multitude of spores. This organ, from its general resemblance to the pistil, is termed a pistilidium. The antheridium is merely a cylindrical or club-shaped sac, composed of a single layer of cells in form of a delicate membrane, containing great numbers of minute vessels—spermatozoids. The sac bursting at the apex when mature, discharges these vesicles. The pistilidia which appear at the same time as antheridia, and often mixed with them, are flask-shaped bodies with a long neck, composed of a cellular membrane; the neck a perforated open canal, through which the spermatozoids penetrate, thence proceed the sporangium or capsule, in which are produced countless numbers of minute spores. Rarely more than one archegonium comes to perfection, the others remain in an abortive state, attached to its base.

The perfect archegonium becoming enlarged and distended by the increase in bulk within the contained vesicle, which latter, as it elongates, is at length torn asunder at an horizontal fissure near the base, the upper portion being converted into calyptra, and the base into the vaginula. It is now the fruit stalk, with the base inserted in the vaginula, and the apex sheathed with the calyptra, which, if it is split on one side, is hood-shaped or cuculliform, if not it is mitre-shaped or mitreform. When the pedicel has attained its full height, its apex swells and becomes changed into the capsule. The pedicel continued through the capsule becomes the columella, around which the spores are generated within a membranous sac—the sporular sac which lines the cavity formed by the external walls of the capsule, when the pedicel becomes enlarged uniformly under the capsule it forms an apophysis, when protuberant on one side only a struma.

The capsule at maturity dehices by irregular ruptures, by four longitu-

dinal slits, or by a deciduous operculum or lid; the latter the most common form. Between its margin and the rim of the capsule occurs an elastic ring of cells, the annulus often wanting. Arising from the mouth of the capsule is found a single or double row of rigid processes, collectively the peristome, in number always some multiple of four, those of the outer row being a continuation of the inner wall of the capsule are called the teeth; those of the inner one a continuation of the sporular sac—the cilia, their intermediate smaller processes, ciliolæ.

Intermixed with the reproductive organs are cellular jointed filaments—paraphyses. The leaves immediately surrounding the antheridia are called the perigonial leaves; those around the archegonia or the pedicel the perichætial leaves.

The Order Musci is divided into sub-orders, divisions, tribes, genera and species.

Sub-order Sphagnaceæ, are the Bog or Peat Mosses. They are perennial, aquatic and amphibious, growing in dense patches of a whitish or pale green color, of soft flaccid habit, differing from all other known mosses in the fasciculate insertion of the branches, structure of the leaves, of the capsule, and in the absence of proper roots.

Sub-order Andræacea, are small Alpine or sub-alpine mosses, of a dark purplish or blackish brown color, growing on rocks, operculum none, capsule dehiscing by four longitudinal fissures, sessile on the fleshy pedicellate vaginula.

Sub-order Bryaceæ—Division Acrocarpi—has the fruit terminal on the main stem, or rarely terminal on short lateral branches. It is sub-divided into Cleistocarpi, which has capsules without an operculum, and rupturing irregularly, and embraces the Phascaceæ, which are diminutive species, generally stemless, and mostly annual, growing on the ground; and Stegocarpi, which has the capsule dehiscing by a deciduous operculum, and embraces above twenty tribes, many genera and numerous species, and includes all the remaining plants which fruits from the apex of the stem, from Weisiæ to Splachneæ.

The Division Pleurocarpi embraces those plants which have the fruit lateral on the stem or branches, and peristome mostly double. This division contains eleven tribes, beginning Fontinaleæ and ending Hypneæ.

We will close by submitting a familiar example to illustrate the structure mode of inflorescence, and fructification; and select the Bryum cæspiticium, one of the most common mosses, growing in tufts on the ground, in the crevices of rocks and walls. The genus Bryum is an acrocarpous moss, fruit terminal; this species is diœcious, the male and female flowers on separate plants, existing generally in proximity.

The plants containing the male flowers, when dissected in water, exhibits at the apex of the stem a cluster consisting of the antheridia, the bladder-like sacs which, after maturity, remain, becoming of a reddish-brown color, mixed with paraphyses, or jointed filaments; the inner row of surrounding leaves constitute the perigonial leaves.

The fertile or female flower is found in the vicinity of the male in similar tufts which upon dissection presents clusters of archegonia, the slender flask-shaped bodies intermixed with the paraphyses. But one of these

bodies comes to maturity, the rest remain abortive, attached to its base. In the progress of development the fertile archegonium has ruptured its vescicle at an horizontal line near its base, the lower portion becoming the vaginula, the upper portion sheathing the apex, the calyptra, and the rudimental vesicle—the pedicel, which has enlarged at the apex into a pendulous pyriform capsule, having the central columella, around which the spores are generated within the sporular sac which lines the cavity of the capsule. The mouth of the capsule is closed by the operculum or lid, and intermediate between the lid and the margin of the capsule is seen the annulus or elastic ring, composed of large cellular tissue, which by its hygrometric action causes the operculum to fall off at maturity, displaying the peristome, a beautiful arrangement, which regulates the escape of the spores. The peristome is double the exterior row, has 16 teeth, the interior a membrane divided half way into 16 carinate cilia, alternating with the teeth and intermediately ciliolæ. The erect leaves surrounding the archegonia are the pericætial leaves. Other species of this genus have the male and female flowers in the same perichætium.

A species of the genus Hypnum might be given to illustrate the division of pleurocarpi, the lateral fruiting mosses, but apart from that characteristic it would be but a repetition of the description, and therefore superfluous.

PROPAGATION AND CULTIVATION OF THE GRAPE.

BY F. F. MERCERON, CATAWISSA, PA.

Read September 5, 1865.

So much has already been written and said on the subject of the Propagation and Cultivation of the Grape, that I am very much afraid what little I can say on the subject will not enlighten you a great deal, as many of you, I know, are much farther advanced in horticultural skill than myself.

As regards the propagation of vines, it is now with me a very simple process. When I commenced six years ago, for the first time to grow vines, I began with a propagating-house, thinking, that to grow good vines successfully and profitably it must be done under glass; and although I had as good success as most people, and grew as good plants, they never gave me entire satisfaction, nor were they equal to the vines grown out of doors, nor, in my estimation, worth as much money. I would not to-day accept the services gratis of any propagator to grow vines for me under glass.

But there is one fact you must bear in mind, that all vine-growers have not the good fortune to possess land as good as mine at Catawissa. A fine sandy loam of great depth, with a subsoil of 5 to 6 feet of pure loam such as is used in foundries for moulding-sand; and I have never yet seen the drought affect it to any great degree.

There is but one grape of any value in the market that I cannot grow successfully by cuttings out of doors, and that is the Delaware; and they are such feeble growers that I prefer raising plants from layers. Of the following varieties I find no difficulty in growing them from two-eyed cuttings, and many of them from single eyes, without any other preparation of my soil than plowing and harrowing as fine as I would for turnips; Rebecca, Diana, Concord, Clinton, Creveling, Iona, Adirondac, Franklin, Hartford, Taylor, Loomis' Honey, Maxatawney. I do not want it to be understood that I do not manure my ground. I manure well for grape cuttings, and as the digging of the vines in the fall (with forks,) trenches the ground pretty well, I follow two years with strawberries. After the ground is ready, I stretch a line, (I have one 300 feet long for the purpose,) then pass a rake along the line to clear away lumps, if there should be any, and then insert the cuttings, plunging the upper eye out of sight; and, before the line is taken up tramp both sides firmly with the feet.

I plant cuttings six inches apart in the rows, and the rows two feet six inches apart, and worked with hand cultivator and hoe. I prefer cuttings six inches long, but plant a great many not over four; I prefer two-eyed cuttings. I prepare my cuttings in November, already for planting in the spring, and pack them away in boxes with the tops downward, using old tan-bark sifted for packing, and covering the boxes with tan or earth.

On no account must the pruning be delayed until the spring. Even the Concord is injured for propagating if left on the vines all winter, unless the winter is a mild one. I planted 3,000 cuttings last spring of Concord that were taken from the vines some time in March, and 25 per cent. of them failed to strike, while of those cut in November not over 2 per cent. failed to grow.

The cultivation of the Grape has, of late years, and does now occupy a large share of the attention of the people of this country, and very large sums of money are invested every year in planting vineyards; any article on grape culture is eagerly read by all who are interested, hoping to find something that will enlighten them.

I have never taken any special pains in the cultivation of my own vines. Six years ago last spring I planted my vines, merely plowing and harrowing the ground, putting on a fair coat of manure, and a little lime, at the rate of 30 bushels to the acre. All the cultivation they have had since, has been merely to keep down the weeds. There has never been a horse or plow in it since. I have always had good crops of grapes, and this year of great failure, I have a fair crop of fruit, although my vines last winter were not laid on the ground as they generally are, and a great deal of the wood was injured by the severe weather.

I am of the opinion that our vines are cultivated too much. I have some vines in odd corners, where it is impossible to give them any cultivation at all, and on which I never fail to get an abundant crop of fruit.

Mr. Fuller says, page 160 of his "Grape Culturist," "The greatest obstacles in the way of cultivating the grape in gardens, particularly in cities and villages, etc." Now, in the City of Philadelphia they are generally successful in raising grapes, even when we fail in the country; and what a small number of vines in city yards get any cultivation at all!—

why, in two-thirds of the vines the roots are covered with pavements of brick or flags, and the light of the sun never reaches them. Three years ago, on my way to the Fruit-growers' meeting at Lancaster, I stopped a few hours in Sunbury, and in the garden of a lady there I saw such a vine of Isabella as I had never seen before, both in productiveness and size of fruit. She very kindly gave me some of the grapes, which I took to the meeting, and there was not a bunch of Hamburghs on the tables that could equal them in size of berry. The roots of the vine grew entirely under a brick pavement.

If plowing and tearing through grape roots is so beneficial, why do not gardeners cut and slash into their grape borders? But do they do it? No. They mulch them well, and that is what they want, in my humble opinion.

I think that our vines are pruned too much in summer. I am certain that two varieties, Concord and Creveling,—which, by the bye should grow alternately on the same trellis—do not want to be touched after they are pruned in the fall; but let that pruning be thorough, and no more wood left on than you want to fruit. The greatest trouble I have to contend with is the burning of the leaves; this is particularly the case with Delaware. With me they lose their leaves so early in the year, that on many vines at this writing, (September 1,) there is not a particle of ripe wood on them, nor ever will be, and the vines will have to be cut down to the ground this fall, to produce new wood for another year. The only vine of Delaware that I have that has any good fruit on it, is one which, on the upper slat of the trellis, has two strong canes of Norton's Virginia growing on it, the fine foliage of which with the laterals drooping over either side, fully protected the Delaware from the scorching sun; the leaves were not burnt up, and the fruit fine and well colored.

Now I have heard a great many persons say, when their vines were burnt as I describe, that the thrip had done the mischief. This year I had scarcely any thrip at all, and I feel certain that my Norton's Virginia saved one good vine of Delaware grapes. I shall now try the experiment of planting a Norton or Franklin, (both fine wine grapes,) between my Delawares, and arrange my trellis in such a way that they shall serve the purpose of a sunshade to the tender leaves of the Delaware, and other varieties that need such protection.

HORTICULTURAL EDUCATION.

BY WM. SAUNDERS, ESQ., WASHINGTON, D. C.

Read November 7, 1865.

The subject assigned to me for introduction is one of great moment, and in conjuction with Agricultural Education, which may be regarded as a synonym, is now receiving more attention than at any previous period. As I believe it is not the purpose of the Society to encourage elaborate essays, I will simply bring the subject before the meeting by a few general remarks.

The first step in the acquisition of knowledge is a desire to know; fortunately, this desire is strongly impressed upon the minds of mankind, and this natural aspiration has only to be encouraged, enticed by that which is pleasant and attractive, and brought in connection with that which is useful, and learning will follow as a natural consequence.

In obtaining a knowledge of any branch of natural history there are two modes that may be adopted and followed, either as distinct, or in various degrees of combination. The first of these is by direct personal observation of the subject, examining it as a tangible object, and from the occular demonstrations thus obtained, endeavor to draw such conclusions as are warranted by the facts, and connecting them into rules of action, so far as the previous knowledge of the investigator will admit. Knowledge thus acquired leads at once to conviction, because there is no necessity for weighing the testimonial evidence of others, or any trouble in deciding between truth and falsehood, or between certainty and probability.

But life is so short, and the boundary of knowledge so extensive, that direct personal observation will furnish us with only a very limited portion of that which is necessary to know. Especially is this the case in natural history, because a proper understanding of one portion depends upon a knowledge, more or less extensive, of many others. Hence, we must have recourse to the observations of other investigators, either oral or recorded, and this second-hand information forms the second general mode of acquiring knowledge.

One mode of obtaining this information is through the medium of books. In them is combined the knowledge of former ages, compiled and systematised so that we can learn at a glance what a life time of observation might fail to accomplish.

Book-learning is sometimes spoken of in a depreciative manner, but only by those who are unaware of the true source of knowledge. Books are the store-houses into which are gathered all the mental productions of the past, and of which all may partake and be refreshed.

Metaphysicians have shown that there are certain faculties, or as they express it, elements of knowledge, which must exist in the mind *a priori*, in order to our forming a judgment upon any subject or object. The Horticulturist, above all other professors, must possess varied knowledge before he can be uniformly successful in his cultural operations. He must be conversant with the principles of culture, and before he can see the rationale of his labors he must have a knowledge of the laws, the definite and unvarying principles of physical science. The field of study thus becomes of immense magnitude. How plants grow, how they feed, and what they feed upon—why some are fruitful while others are barren—the exact specific relations that exist between them and the soil upon which they are growing, and the various developments induced by the unequal distribution of the elements of growth, are the subject matter of physiology—a science that comprehends a knowledge of Botany, Chemistry and the general principles of Natural Philosophy. The constituents of soils—their numerous combinations and the sources from which they are produced, are taught by Mineralogy and Geology. Economy of labor

depends upon the skillful application of the laws of Mechanics. A knowledge of the laws of Hydrostatics and Hydraulics is necessary before we can understand the science of draining, or provide for its proper application or execution. To guard against attacks of insects, and repel those that have found a lodgment, involves an acquaintance with Entomology; and the complicated influences of climate bring him in contact with Meteorology. In short, there is no branch of knowledge, but what will contribute to his aid,—all are valuable, and may be productive of suggestions applicable to some one or other of his varied pursuits. And he will constantly be encouraged in his pursuit of knowledge.

Every step that he advances will open to his view wonders previously unsuspected. Not a height does he gain from which his prospect is clearer and more extensive, but his ideas of these wonders acquire a yet more surprising vastness. Every thing in nature that arrests his attention by the grandeur of its greatness, charms him with the simplicity of its modes of operation. The more he knows, the more he desires to know; and the further he advances the more does he perceive how much delight is yet in store for him. It is an immense stride in the march of mental improvement when we become conscious of our own ignorance.

In pursuing studies of this nature we not only find that "knowledge is power," but also that knowledge is happiness.

There is an unfortunate impression in the minds of many, that science is something antagonistic to practice, that there must be a line of distinction between the practical man and the man of science.

Science is simply knowledge systematized; therefore the man of most science is the man of most knowledge; but knowledge, to be useful to the cultivator, must be rendered of practical application, and herein lies the barrier to progress. Not that the scientific man is, of necessity, not practical, but that, so far as scientific cultivation (so-called) is concerned, we have not yet a recognized educated class that can apply this systematized knowledge practically and directly to the wants of man.

This is the education that Agricultural Colleges propose to impart; but the best mode of doing so is still a matter of suggestion and experiment. Institutions of this character are springing up in every State; there seems, however, to be widely different opinions as to the best mode of conducting them. Those that are in operation do not succeed in fulfilling expectations so far as concerns the practical operation of the revelations of scientific investigations to the products of the soil. I have no fear of contradiction by remarking that the best managed and most profitable farms are not those attached to Agricultural Colleges. It is acknowledged that they come very far short in this respect. These, then, cannot be very good schools for acquiring knowledge in practical agriculture, neither can it be wholly taught inside the walls of a college. But that it ultimately will be successfully accomplished there can be no reasonable cause for doubt.

We have abundant evidence of the practicability of one man combining a thorough knowledge both of the principles and practice of his profession.

What, for example, would be thought of a physician who, when called upon to prescribe for a patient, could only do so by entertaining him with

a lengthened exposition on the theory of medicine, show him an extensive catalogue of drugs, attempt to explain the importance of analysis, &c., without being able to apply this knowledge to the case before him? On the contrary, his education enables him to apply his science or knowledge in alleviating the "ills that flesh is heir to." He is but a sorry practitioner who has not studied the principles upon which the art of healing is founded; but not more so, perhaps, than the cultivator of the soil who is ignorant of the fundamental laws that govern *his* operations.

It has long been a favorite idea of mine that an establishment for horticultural education could be so organized and conducted as not only to be self-supporting, but prove to be a profitable investment; and that, too, without demanding any charges from the students except their labor in conducting the necessary operations, the products of such labor defraying the whole expenses of the institution. The entire routine, operations of nursery, orcharding, exotic fruit culture, and plant and flower-growing, would be embraced, with scientific demonstrations of the principles forming the basis of the practice followed. This would form a plan of instruction of which young men would gladly avail themselves on such easy terms; and the commercial value of the products would more than suffice to meet all expenditures. The feasibility of such a plan I consider to be beyond doubt.

It cannot have escaped observation that, in many instances, amateur cultivators have succeeded in arriving to great perfection in their undertakings; and many valuable suggestions, as well as striking practical results have emanated from those who are pleased to designate themselves as *novices* and *tyros* in horticulture. Illustrative examples of this class can be found in all societies, and in none, probably, more than your own; to them, in no small degree, are such societies indebted for success. These are the patrons *par-excellence* of horticulture; they bring to the consideration of the subject, minds trained to close observation of cause and effect, not wedded to particular prejudices or scholastic forms and rules, give a patient hearing to all questions, examine and weigh all arguments, not putting implicit faith in any *dictum*, but "try all things and hold fast to that which is good."

One of the most certain modes of encouraging a taste for horticulture and its associations in young minds is that of embellishing school-house grounds. "Train up a child," says the wise man, "in the way he should go, and when he is old he will not depart from it." Recognizing the same influences, Paul, the eloquent apostle, enjoins parents to bring up their children in "the nurture and admonition of the Lord," which implies a probable expectation that a pious education will lay the foundation for a pious character. I have a belief that those who have early instilled in their minds a love for flowers and music are incapable of committing a moral wrong. The deepest impressions are made in early life, and I believe the time will come when the proper embellishment of school-house grounds will be considered quite as essential as the choice of a teacher.

The practice of horticulture is perhaps the most attractive of all operations. God has implanted in the breasts of all mankind a natural desire to cultivate and admire the products of the earth, from the artless prat-

tling child who, with outstretched hands, seeks to pull the brightest flowers, to the aged invalid who goes leisurely forth to inhale the fragrance of the meadows and enjoy the refreshing influence of the balmy breeze. The force of circumstances, the love of power and wealth, may confine men to crowded cities, but as these actuating passions subside, and the day of life passes its meridian, the desire for the quiet calm of rural enjoyments becomes stronger, and the evening of life is passed in the contemplation of nature as presented in fields and gardens. It affords us a gratifying hope for the future when we observe that such pursuits as bring men in contact with these ameliorating influences are increasing in popularity.

BOUQUETS AND FLORAL DESIGNS.

BY JAMES EADIE, PHILADELPHIA.

Read December 5, 1865.

The arrangement of cut flowers is the subject for the evening, and like all other artificial arrangements, depends very much on taste. Some will prefer one style, and some another, while some methods of arrangement seem to be generally admired; and these seem to charm, more by the simplicity of the arrangement and graceful outline, than by any labored effort to produce harmony.

Bouquets are now an every-day necessity in fashionable life, and in all our large cities this has become quite an extensive business. It is not to the experts at the business that the present remarks are addressed, but to those who make up their own bouquets, and to brother gardeners in the country, who have not the benefit of attending your exhibitions, at which the display of cut flowers is often so magnificent, and the arrangement so good, as to be rarely equalled, if ever excelled, by those who make it a business.

In making a few remarks, I shall confine myself more particularly to the winter season, for then flowers have a double value, from their scarcity, and the mention of a few of the plants most necessary, may not be out of place. First in order, as in excellence, is the *Camellia Japonica*, a plant which is a universal favorite in or out of bloom, whose dark-green shining foliage and graceful form, render it attractive at all seasons. *Azaleas* of every color, from the deepest crimson to the purest white; *Acacia*, with its feathery spikes of bloom, seeming to have borrowed its color from the auriferous region, where it is indigenous; *Jasmine*, always pleasing by its grateful perfume, which may be remarked also of *Mignonette; Violets* are always welcome, with their pretty blue color, and their pleasing perfume; *Daphnes*, owing to their delightful fragrance, are universally esteemed; *Euphorbias*, with their brilliant scarlet bracts, are almost indispensable; *Heliotrope* is an indispensable necessity in cut flowers, and if I were limited to a choice of two flowers, they should be

the Heliotrope and the Camellia; *Stevia* is one of the most useful flowers in its season; it imparts a lightness and gracefulness which few other flowers can. Sweet Alyssum can be had in perfection all the winter; and, for orange-colored flowers, *Nasturtium* will be found useful. A few plants trained up the rafters of the greenhouse will give a profusion of flowers. *Bouvardia leiantha* is one of the finest for cut flowers. *Bignonia* is a very useful winter flower. *Passifloras* of sorts are beautiful, although they close very soon. The *Abutilon*, with its golden bells, used for hanging, has no equal, and produces quite a profusion of its lovely pendant blossoms. *Monthly Carnations* are not so much used as their quality demands, but are fairly introduced, and their cultivation will increase.

For baskets and table designs the Lily of the Nile (Calla) is not surpassed, and as the season advances will become plentiful. *Pelargoniums* have no rival. *Deutzia* is a general favorite under the name of "Orange-blossom," while *Spiræas* and Roses, that "Queen of Flowers," together with many others too numerous to particularise, will usher in the spring. I have abstained from saying any thing of *Orchids*, as they are not so generally grown; but such varieties as *Maxillaria picta*, *Zygopetalum* and *Dendrobiums* are so easily cultivated, and yield such a profusion of beautiful, sweet flowers, they would be found useful in every collection.

The modern system of "making up" is a little different from former systems; formerly flowers were cut with sufficient stem to enable them to be tied together as they were cut off the plant; now no bouquet maker would thank you for such stems. Wires of various sizes, according to the size of the flowers are used. Bouquets may be of any desired shape. To my taste a half-ball is the prettiest; it shows the flowers to good advantage, whilst the under part is almost hidden by the hand. After having gathered your flowers, and *wired* such as require it, prepare the "green;" the best for the purpose is the *Lycopodium dendroidum*, or leaves of the "*Rose*" *Geranium*. Take a small, straight twig, a little thicker than a common pencil, and say ten inches in length; chose one of your prettiest large flowers,—say a White Camellia, nearly, but not quite, open, (I think Camellias should never be fully open for bouquets,) tie this on the end of your twig; add a few sprigs of "green," so that their points will stand nearly as high as the flower; to this four heads of Heliotrope, some Violets, Stevia, Jasmine, or other small flowers, to make a complete circle; next a circle of Camellias, about one inch apart, filling between and around them with small flowers, taking care that the large flowers always form the ground-work, if I may so speak, and the small flowers stand out in relief, to secure a light and graceful appearance. Be very careful that the colors of the flowers are properly mixed or contrasted, and distribute the fragrant flowers regularly over the surface, so that no part shall be without its share of the perfume. Around the edge a band of flowers, of one color, looks very well; such, for instance, as rose-colored *Azalea* or crimson *Azalea*. This is also the appropriate place for such drooping flowers as *Abutilon* or *Fuchsia*.

Table Design is the term employed to designate an arrangement of cut flowers, for the table, and may be of any shape or form desired. The "Pyramid" is very commonly selected form, and when well executed

looks very well. The great disadvantage of this form is, that when large, a great many flowers are required; but where this is no consideration, it is certainly one of the most effective styles.

To make a pyramid, a wire frame of the desired shape is requisite,—fill it with damp moss,—select some conspicuous flower for the top, such as a *Rhododendron*, *Calla*, *Strelitzia*, *Pampas Grass*, (*Generium argenteum*,) or the like,—tie your flowers on small twigs, and work from the top downwards, using the large flowers always as the ground-work, arranging the small ones so as to stand pretty high over them, which, with a few pretty leaves distributed among them, impart a grace which is sure to be admired. A few sprigs of *Fuchsia* or *Abutilon*, pieces of Tradescantia, or any similar object hung around the base is appropriate; Rose-buds, sprigs of Jasmine, or other attractive flowers, standing out four or five inches over the entire surface, at proper intervals, has a pleasing effect.

Another design, which combines beauty with economy of flowers, is a vase, the top or basin being filled with a few pretty flowers and leaves, and a number of pendulous flowers, such as *Passiflora*, *Bignonia*, or other similarly shaped flowers, hanging loosely all around, or several small wreaths may be substituted. The vase may also have several smaller vases branching out from it, with wreaths suspended gracefully from one to another. Any of these arrangements, when skilfully and tastefully executed, produces a pleasing design.

Baskets are a very fashionable and beautiful means by which flowers may be arranged, and when the parts are justly proportioned and neatly filled with choice flowers, deservedly admired. Your Society has done much towards improving the proportions of baskets. We now seldom see a small basket with a great high handle, or a handle six inches wide, or a basket of the dimensions of a large wash-tub, and but an inch or two in depth. Or a basket so arranged that the entire surface so smooth or even that the graceful sprigs would all appear to have been clipped off with a tailor's scissors. My own method of arranging a basket is as follows: Obtain a wire frame of the proper size and shape; with green woods-moss cover the bottom and sides, pressing it firmly against the sides, so as to conceal the wire-work; fill the basket with wetted saw-dust, or saw-dust and sand mixed. Instead of covering the entire upper surface with moss, I prefer distributing it in small patches as I supply the flowers, as it is difficult to push in the flowers with weak stems through the moss. The same course is pursued with the handle. I tie on a flower or two, then a little moss is tied to the stems, so as to supply moisture to the flowers, which is essential to their preservation in a fresh state. I prefer a fringe or border of flowers of a single color, if such can be had, believing that such an arrangement sets off the beauty and form of the object, reminding us of the bracelet employed to ornament a beautiful arm.

The foregoing remarks, I am well aware, are crude and imperfect. The description of my mode of operation was distasteful to me from the time I was solicited to furnish an essay, and recent circumstances rendered the undertaking still more difficult to me.

REPORT ON ENTOMOLOGY.

BY PROFESSOR S. S. RATHVON, LANCASTER.

CURCULIO.

It has now become a fixed fact, that an insect, popularly called "The Curculio," is the greatest enemy with which the fruit-grower has to contend, and against whose depredations the very best remedies have, thus far, been, in a measure, ineffectual. The question is asked over and over again, of those who are presumed to know something about the history and habits of this insect: "Do you know any remedy against the destructions of the curculio, and especially any *new* remedy?" for it appears that, like fashions in dress and furniture, the generality of people tire of old things—merely *because* they are old—and are ever in search of something new, only *because* it is new. In reply to these queries, let it be distinctly understood that there *are* remedies, both old and new, by means of which this enemy to our best fruits may be effectually destroyed or held in check; for there are circumstances, however rarely they may now occur, under which the presence of a reasonable number of curculios may be a benefit, rather than an injury, to a crop of fruit. But as the curculio, as an instrument of use, is not to be relied upon—simply because it is so prone to become an instrument of abuse—it is safer at all times to allow its uses to be performed by some other and surer means.

The success of the very best remedies for the destruction of the curculio, and the consequent salvation of the fruit crop, is based upon at least two important conditions; and these are a *simultaneous* application of the remedy, whatever its substance and character may be, and a *perseverance* in it until the end is accomplished, by all the fruit-growers of a town, a county, a district, or a State. Any remedy that will destroy even a single insect, in its *larva*, its *pupa*, or its *imago* state, is useful, and, in the absence of any thing better, ought to be tried; but then it must only be estimated at what it is worth.

I confess I have now very little faith in lime, ashes, pepper or tobacco-dustings, or any other similar substance applied to the leaves and fruit of trees, as a means of destroying this insect; nor yet in decoctions, solutions and washings, for the same purpose. These outward applications are only skin-deep, at best, and as the curculio at such times is more intent upon forming a nidus for its eggs, than seeking food for itself, and, moreover, is provided with a nasal elongation, armed in front with a sharp pair of cutting forceps, it very easily penetrates the fruit, and is very little

affected by any such application, especially after it has become dry. It is true, that, by the application of these remedies, *some* of these insects may be destroyed, and, therefore, the remedy is to be valued only according to the *positive* knowledge we have of the numbers so destroyed in a given time, and no more. I have also lost all confidence in traps and bonfires, for the extermination of the curculio. Not that some may not be captured and killed by such means, but that they are *always* more destructive to insect friends than to our enemies. I have often, during the last five or six years, noticed that, although myriads of insects were attracted by the bright coal-oil lamp in my sanctum, during a warm spring or summer evening, when the windows were open, yet I cannot recall a single instance in which I found the curculio among those I examined. The great majority of the insects attracted by a light are nocturnal *Lepidoptera*, and the next in number are the caribidinous *Coleoptera*—the former very destructive to vegetation, and most of the latter depredators upon other insects; so that a bonfire for the destruction of the one, would also involve the destruction of the other. It is my impression, that, during such an evening, when her bird enemies are at roost, Mrs. Curculio is actively engaged in stinging the fruit and depositing her eggs—at least, she is not in company with the giddy moths at the lamp. I have been in the habit of raising the curculio from the larvæ by placing infected peaches, plums, quinces, &c., in glass jars, half filled with earth, and covered with stout gauze or millinet, just to see whether there was any difference in the specific characters of the insects that sting the different kinds of fruit; but, with the exception of a difference in the shade of coloring, they were all the same, namely, *Conotrachelus nenuphar*. One or two things, however, that seemed to stand out in bolder relief than others, I could not fail to observe. The first was, that, in more than ninety out of every hundred young plums and peaches that had fallen upon the ground, in which the seeds had not yet hardened, I found the larvæ of the curculio in and feeding upon the kernel. The next important observation was, that, in nine times out of ten, the larger number of the insects, after they had reached the pupa or mature states, had died in the ground, and, of course, did not come up at all. The cause of their death prematurely, without a doubt in my mind, was, drought. From my neglect to continue a proper degree of moisture to the earth, it would dry up and kill the curculios. This was not only the case with the curculio, but also with the little blue grape-vine beetle, (*Gastrophysa chalybea.*) When I kept the earth at the proper state of moisture, I could bring my curculios to maturity and up out of the ground, ready to commence operations for another crop the same season. If these observations are worth nothing more, they may suggest this, that curculios—we don't know how many—are, at irregular periods, destroyed by long-continued droughts, occurring at an important period in their transformations. Of course, if by any artificial means a drought could be produced under a tree, the fruit of which had been seriously infected by the curculio, without injuring the tree itself, the remedy would be worth just what it might accomplish in their destruction, and no more, still leaving it of doubtful practicability in a majority of cases.

But, as I said at the outset, there are many remedies, any or all of which

may do more or less good, according to the degree in which they may be made available for the time being; and in this proportion they ought to be guarded. Too much confidence in an inferior and unavailable remedy may prevent the trial of a better one, and, on this account, no remedy ought to be relied upon any further than its usefulness may be demonstrated by actual experience.

At one period of my experience, I had great confidence in paving beneath plum and other fruit trees liable to the attacks of the curculio; but my opinion of this remedy now has undergone a very perceptible modification. Paving, under certain circumstances, is useful, but it is far from being *the* remedy; indeed, I doubt whether it is worth while going to so much trouble and expense as is involved in it, when there are other remedies more effective, less expensive, and less troublesome. I had a plum tree in my yard, the one-half of which hung over a hard and wide-paved walk, and the other half over a cultivated flower-bed. Mine was a Green Gage, but my next door neighbor had a large Blue Plum in proximity, which was every year full of fruit, and, also, almost as full of knots. He never paid much attention to these, and, consequently, the curculios rioted in them and had things pretty much their own way. The cultivated side of my tree was always more or less infested with the insect, whilst the paved side was comparatively free. My efforts to destroy or lessen the numbers of the curculio were of no avail so long as my neighbor did not co-operate with me. Finally his tree became so bad, that he cut nearly the whole of it down. In cutting off the knots, he cut so much of the bearing wood away, that it afterwards bore no fruit. In consequence of this, the next season, the curculios coming out of the ground, and finding no more plums and knots on my neighbor's tree, they invested mine all around—the paved side as well as the cultivated side. Still, the pavement, so far as it goes, is useful; but I have discovered, that, although the curculio is endowed with peculiar preservative instincts, it will, nevertheless, deposit its eggs in situations unfavorable to the development of its progeny, if it can do no better.

Mr. Royer, a friend of mine in this city, has great confidence in paving, and hens and chickens, under his plum trees, and *does* contrive to have a good crop nearly every year, even when all around him fail. I suggested the pavement and the hen-coop to him two years ago, and he has followed it with reasonable success ever since. One should think that this kind of experience was conclusive; but it seems not to be so, for another friend, Mr. Patterson, of Marietta, Pa., has given the pavement and the chickens a fair trial, and has signally failed. Young or old chickens are excellent auxiliaries for the destruction of the curculio, in either its mature or larvæ state, if they happen to see them; but I doubt whether they will go to much trouble to dislodge them from the fruit that falls from the tree. Moreover, in my opinion, most of the grubs of the curculio pass from the fruit into the ground to undergo their transformations, after night, when the chicks, or chickens, are at roost, and hence their vigilance is evaded.

I do not know that this is positively the habit of this insect in all cases; but I *do* know, that, among most of the insects which I have attempted to observe, their passages and transformations have been commenced or

ended after night. Of course, where the ground is very hard, or where it is paved beneath the tree, the escape of the larvæ from the fruit into the ground would be attended with a proportionate difficulty, and hence a morning sun might reveal a score of baffled grubs to a brace or two of chicks, who would break their fast upon them with the greatest avidity. All that is required in a remedial agent of any kind, is to restore a healthy natural balance in the economy of nature, and if, under certain circumstances, this can be effected by paving or by chickens, let that remedy be relied on, as far as it goes. I have, however, more confidence in pigs, calves, sheep, or any animal that eats the whole of the fruit up clean as fast as it falls to the ground. Daily hand-picking will effect the same end; but where there is a large orchard of fruit trees, it might be necessary to turn in all the pigs, sheep, kine, &c., on the place, in order to eat up the fruit as fast as it falls. In this manner the larvæ of the curculio may be more numerously and more effectually destroyed than by any other means that I can at present recall.

I am supported in this opinion of the value of this remedy by several practical demonstrations of a most decided character within the past ten years; but then the remedy is only valuable, and, indeed, is only applicable, for the destruction of the *larvæ* of the curculio, or any other grub that may be found in fallen fruit of any kind. One particular instance, that came under my observation, was of so marked a character, that it may not be out of place to record it here; and I have no doubt that many others may have had a similar demonstration. A gentleman, who was in the habit of keeping pigs, chickens, ducks and geese, in pens at a remote end of his lot in this city, conceived the idea of giving his stock more room during the summer season, by running a fence across the lower one-third of it, and converting that portion of it into a pig and poultry-yard. As he got very little fruit from the fruit trees in his enclosure, he thought it would be better to convert it to this use, than to leave it remain without performing any use. In the centre of the enclosure stood a fine plum tree, that yielded largely of blossoms and fruit every season, but little or none of it ever came to perfection. Just within the enclosure, but with about one-half of its branches hanging outside, was another plum tree, of a different and finer variety, with which he had the same "luck." The first season, of course, the beneficial effects of the change were not very apparent, which is not saying much in behalf of the instinct of the curculio; but the next season, and for a series of years afterwards, this insect's depredations became less upon those trees—except on that portion of the tree which hung outside of the enclosure—until they were nearly free. They probably would have been entirely free, had he and his neighbors around him picked up the fallen fruit from the other trees in proximity, and throwed them into the enclosure to the pigs, geese and ducks. The curculio, in this instance, seemed to be susceptible of a sort of reasoning power; for it ceased to deposit its eggs in the fruit of those trees so long as there were others of easy and undisturbed access. It is not absolutely necessary, in all cases, that fruit stung by the curculio should be picked up the very moment it falls upon the ground, although nothing is lost in doing so; moreover, to suffer it to lie there for an indefinite period,

might facilitate the escape of the larva into the ground, without our intending it. I have known the larvæ to pass out of the fruit a very short time—perhaps only an hour or two—after it had fallen; and I have also known it to remain in the fruit four or five days before leaving it. This is altogether owing to the progress the insect had made in its larval development *before* the fruit fell, and not merely because it *had* fallen From this, therefore, it will be seen that, if there are no animals under the trees to eat the fruit as fast as it falls, there is ample time to pick it up by hand before the larva escapes into the ground, to undergo its transformations into the imago state. If this fallen fruit is then scalded or boiled, the double purpose will be accomplished of destroying the larvæ of the curculio, and making the fruit itself more palatable as food for domestic animals.

Of course, this process as a remedy cannot reach the mature insect, which may go on puncturing the fruit and laying its eggs, without regard to what disposition may be made of them through contingencies over which it has no control, and which no amount of instinct can teach it to avoid. But there is this much gained at least, and that is, whatever number of grubs you destroy before they have an opportunity to change into beetles, lessens the immediate number of enemies to your fruit just so many, and prospectively vastly more; for every female curculio is capable of depositing some twenty-five or thirty eggs during her lifetime. No doubt every horticulturist notices that at one particular stage of the fruit's growth it falls more readily than at another stage; for instance: I have observed that before the stone or seed had hardened in peaches and plums, and the larvæ of the curculio had consequently penetrated into the kernel, the fruit would fall more readily and in greater quantities than after that period. In this prematurely fallen fruit the larvæ sometimes perishes before it can appropriate sufficient substance to complete its development, especially when the weather is dry, and the fruit by exposure to the sun dries up too suddenly. But I must pass on to briefly notice another remedy, which has been considered of sufficient prominence to induce some fruit growers to go to the trouble and expense of giving it a thorough trial; and that is, planting fruit trees so as to have the branches overhanging ponds of water. This remedy may be to a limited extent beneficial, but that limit will be confined to the number of the fruits, containing the larvæ of the curculio, falling into such ponds, and cannot possibly extend any farther. My attention was called to a circumstance of this kind years ago, where a portion of a plum tree which hung over a stream of running water, enjoyed a complete exemption for a long time, from the stings of the curculio. The absence of the insect from this side of the tree, whilst the other side always suffered more or less from this cause, seems to be purely the result of instinct. In other cases this remedy, as a preventive, has been a signal failure, or has succeeded only very partially. It can, however be tested on a limited scale without much trouble or expense, and if it is found entirely effectual as far as this limit extends, then it may become sufficiently important to extend it on a larger scale. For instance, let a fruit grower select some particular branch of a tree, and keep a large tub of water under it from the time the tree first blooms until it ripens its fruit, and if no curculios attack the fruit on that limb, then there is reason

to believe that this plan as a remedial agent, will be effectual, unless there may be some other counteracting cause calculated to frustrate it. This will establish the fact of that instinctive caution which has been so freely accorded to mother curculio. So many attempts have been made to circumvent and defeat the designs of the curculio upon the fruit crop that have been only very partially successful or entirely unavailing, and therefore it is not at all surprising if it should receive more credit for instinctive cunning and craft than it is entitled to; although to say it has none would only be a more fatal error in an opposite direction. Sweetened water, in wide-mouthed two or three ounce bottles, tied plentifully upon the trees during the egg-laying season of the curculio, I have never tried, for the want of time and proper opportunity; but it comes to me endorsed from such a reliable source, that I am compelled to regard it with favor, until I can see or practically test its value one way or the other. I know from experience that many destructive insects resort to sweetened mixtures in swarms, and also that many of our insect friends have the same penchant, especially the *Ichneumonidæ*. I have also often captured various species of the *curculionidæ* on wild flowers with their heads and beaks buried in the receptacles containing the nectar, and lapping it up with the greatest avidity; suffering themselves to be taken; when, under other circumstances, they would draw in their feet close to their bodies and fall down like a seed of some kind, and be quickly out of sight. Most of the insects taken in such traps, however, would be likely to be enemies, because it is hardly to be supposed that the predaceous and carnivorous kinds would resort to them. But then, if even effective, they would require very frequent and careful examinations, frequent emptyings and replenishings, and would be liable to have the sweetened mixture diluted by heavy rains, and spilled by violent storms. If this remedy should be tried by any one, I would suggest the poisoning of the mixture, because many insects caught in such traps expand their wings in attempting to escape, and therefore they would float upon the surface, forming a bridge for the escape of those subsequently caught. This remedy, however, could only operate to a limited extent upon the *Imago*, and could be of no possible advantage in destroying the larvæ. One drawback to the prospective capture of the curculio in any considerable numbers in such a trap, and by means of such an aliment, is the fact that it is not positively known that this insect eats anything, and particularly so, at the season in which the females are engaged in cutting the fruit and depositing their eggs.

Fumigations of various kinds, have been resorted to, to drive off the curculios. I say to drive them off, but I do not seriously think that many have ever been killed by that remedy, even if it has temporarily driven off a few of them. If a tree could be invested with a covering of some kind that was sufficiently tight to prevent the escape of the fumes introduced within it, the death of all the insects on the tree might be probably thereby effected; but without this I doubt whether they would be much discommoded. It is also quite probable, that if we could just see the curculio at work upon a young apple, cherry or plum, and were to hold a turpentine or brimstone torch near it, we might destroy it, but then in our efforts to bring the torch near enough to it to effect our end, we would

also be liable to kill the fruit. We might afford this, however, if we did no worse, in the certainty of having killed the insect.

A year ago last summer, I had a grape vine very much infested with the little grape-leaf hopper, *(Erythroneura vitis,)* sometimes called the "thrips." Approaching it one day whilst smoking a cigar, I blew some of the smoke upon a leaf pretty well stocked with the insects, and they immediately all rolled off and fell to the earth, as if they were dead. This led me to experiment further, and therefore the next morning, the weather being somewhat cool, and the insect consequently inactive, I caught about a hundred of them and put them in a bottle, with some of the leaves of the grape. This I blew full of tobacco smoke and loosely corked up. The effect upon the insects was the same as it was in the garden, they all fell from the leaves and sides of the bottle to the bottom, seemingly dead. I was rejoiced at this result, and stood the bottle away. At noon, or about six hours afterwards, I examined the bottle again, and found that the smoke had all passed out, and the leaf-hoppers had revived, and were as lively as crickets. I did not observe a single dead one among them. Fumigations in my opinion, can only temporarily stupify at most and are therefore not to be relied on unless they are produced from the burning of some very poisonous or offensive substance, and this might involve too much danger to human life, to be habitually resorted to.

Insectivorous birds, in sufficient numbers, would be the most effective remedy for the destruction of the adult curculio and other insects, that could be possibly brought to bear upon them. And this, because their efforts are vigorous, constant and waged for the sustenance of their own being and that of their progeny. The Golden Robin, *(Icterus Baltimore,)* and the Orchard Bird (*Icterus spuriosus*) especially, may be found very industriously engaged on fruit trees, in the spring and early summer, capturing insects as though it were a matter of life and death with them. There are also others, such as our common Blue-bird, Wren and Robin, that perform effective service in that way. I know of no bird however, that is in the habit of dislodging the larvæ of the curculio from the fruit. When it gets that far, we must depend upon the pigs or hand-picking.

If it could be made manifest, I think it would be found that all insects have a special enemy, perhaps more than one, and doubtless this rule would extend to the whole animal kingdom. To a considerable extent it has been demonstrated that this is the case in the Class *Insecta*, and it appears to me that the highest exercise of insect instinct, is that which enables them to know when their natural enemies are near, and how to elude them. There seems to be a sensible communication between the insect and its enemy, conveyed either through sight, sound or feeling, but that same sensation may be produced through artificial means, and by an instrumentality that is not a natural enemy. A hen, for instance, will instinctively sit upon her eggs for three weeks, and if they are not hatched out then she will soon leave them, but she does not seem to be possessed with sufficient instinct to know her own eggs from another hens, or a duck's, or whether they are real eggs or only artificial ones. Something of this kind of instinct is displayed by the curculio. If a bird lights upon a limb of a tree in proximity to the female insect while she is engaged in stinging

the fruit, she will immediately draw her feet in close to her body and fall to the ground, pretending to be dead, "play possum" as they say.

Now if the limb is suddenly tapped with a wand or other suitable instrument in the hands of a man, she will do the same thing, and this circumstance may lead to the most certain and most effective mode of destroying the mature curculio of any other that has ever been known and tried. But remember it must not be a mere shake, no matter how violent, for this the winds and storms may daily do without shaking down a single insect. Those who have noticed birds lighting upon a branch, if they were near enough, must also have noticed a sudden tremulous motion of the leaves, and this is also apparent when they leave it; caused in the first instance by the muscular grasp of the feet, and the weight of the bird, and in the second by a pedal projectile force in leaving again. A contrivance of some kind that would produce this effect, would be what is necessary to cause the curculio to desist from its destructive labors and fall to the ground, where it might be caught on sheets spread out to receive it, or upon a canvas constructed for that special purpose. The violence of the blow necessary to produce the desired effect, of course would depend upon the size of the tree or the limb that is struck. I have an indistinct recollection of having read or heard of a case somewhere, in which a man by sheer importunity had caused the curculios to leave a plum tree on his premises in disgust, and without his intending it. The tree stood near his house and originally had two main branches, dividing four or five feet from the ground, one of which had been broken off by a storm. He sawed this square off leaving a stump of a few inches, into which he was in the habit of striking a broad axe several times every day, perhaps every time he was done using it. This jarring knocked down some rotten and punctured fruit, and its continuance subjected the curculios to such frequent interruptions that they left it finally for a more congenial situation; for it must be kept kept in mind that this insect is rather a slow worker, even when it is on the fruit, and frequent interruptions might easily cause it to change its original determination.

This thing of shaking the curculios down from the plum tree has been recommended and tried long ago, but from the time and manner of application I am not at all surprised that it proved unsatisfactory, and was not perseveringly followed. For instance, it has been stated that this shaking should be done in cool mornings, when the insect is benumbed or semi-torpid, when it would readily fall down and be easily captured, from its inability to escape. This I deem a mistake, for I doubt whether the curculio could either be jarred or shaken from a tree while it was in such a state. I have known insects while in that condition cling so close to the objects on which I found them, that they would lose their limbs before they would let go, and I believe the curculio would not be an exception. Of course they would not let go because they could not, having very little control over their muscular system while so benumbed; and for the same reason they would not be found upon the fruit in such a condition, but would be hidden in some little nook, from which it might be difficult to dislodge them. On the contrary I would respectfully recommend that the jarring process should be applied during warm days, especially when

the female insect is supposed to be most actively engaged in cutting the fruit and depositing her eggs. She does not fall from the tree because of the concussion alone, but because she apprehends the approach of an enemy, and drops down and pretends to be dead, in order to elude its vigilance; where she lays like a shrivelled piece of bark or a bud, and gives you sufficient time to capture her before she attempts to make her escape. The attempt to prevent her from ascending the tree again, will not be of much avail by tying cotton around the tree, or investing it with a barrier of tar or other substance; for, if no better way presented itself, being amply supplied with wings, she could easily fly up. It seems rather discouraging to the fruit-grower I confess, that this slow and tedious process for the destruction of the curculio, is the best and surest that can be recommended, but it is even so, and the sooner we can realize it the sooner we will succeed.

Although the curculio can fly, and makes use of its wings in passing from one locality to another, yet I have never known an instance in which they attempted to make their escape by flight when they have been disturbed. They invariably drop down to the ground, if they are not caught by some intermediate object; but sometimes, when not engaged in ovipositing, they will merely pass to the under side of a leaf or small branch, when not too nearly approached.

This jarring process should be continued from the time the fruit trees first commence blooming until the fruit is ripe, or as long as any of the insects continue to fall from the trees. When captured, you may give them their quietus by scalding, roasting or crushing.

As early as 1850 there were at least twelve species of *Conotrachelus* catalogued and described, as belonging to North America, and there are doubtless other species that have been brought to light since that period. As these insects appear, and are generally considered indigenous to this country, the question naturally arises, what fruit did they attack and live upon before there were any domestic fruits cultivated? This question can, of course, only be answered conjecturally. In the first place, we may suppose that their numbers were then not so great as they are now; and, in the second place, that in the absence of cultivated fruit, they would resort to the wild kinds, and to the various kinds of knots or excrescences that are often found upon particular kinds of trees. It is quite certain that, although the curculio has nothing to do with originating and forming the "knots" or excrescences so often found upon plum and cherry trees, yet it will resort to them as a nidus for its eggs and young in the absence of fruit sufficient for its purpose, and sometimes even when there seems to be fruit enough to supply all its wants. Mr. Jno. J. Libhart, a very intelligent fruit-grower of Marietta, Pa., informs me that upon an occasion he planted some plum trees in proximity to several bearing wild cherry trees, in a place remote from any other fruit trees thinking that, possibly, thereby his trees might enjoy an immunity from the attacks of the curculio when they once came into a bearing condition

In this hope, however, he was sadly disappointed, for he found the curculio even worse there than he had found them in any other locality and, on examining the wild cherries, he found them also similarly infected

I confess that this testimony does not add any thing to the hopefulness of ultimately exterminating this insect, nevertheless, it may serve as a warning against maintaining such a refuge for it, near enclosures of domestic fruits. Still, the question may be asked, "why is it that the curculio is *now* so partial to the various kinds of plums, peaches and nectarines, when it certainly could not have had recourse to these in its native state?" To this we might reply, in the first place, that coming up out of the ground, or from its winter hiding place in the spring, and finding its native tree removed, it would naturally seek another; and, finally, finding other fruits better adapted to its purpose, and less liable to the attacks of its natural enemies, it would soon cultivate a partiality for them; and especially those fruits that would be most liable to fall to the ground at the proper time, and afford them the best opportunity to escape therefrom; for, this insect in its larvæ state, like all those of the *curculionidæ*, is a very indifferent traveler. There are many instances in the economy of insects, in which they in their habits manifest a decided preference for fruits and vegetables that they could not possibly have resorted to in a state of nature. A case of this kind is now causing some excitement in both the entomological and the horticultural world, in reference to the destructive "potato beetle" that is now appearing in Iowa, Wisconsin, and North Illinois. This insect (*Doryphora juncta*) was originally found feeding upon the *Solanum rostratum*, in the territory of Colorado, but after the introduction of the common potato, *Solanum tuberosum*, the insect seemed to prefer that, and it is now traveling eastward, and last year was very destructive to the potato crops in the States above named, including also Kansas and Nebraska. A closely allied species (D. 10-lineata) has long been known in the South, but I believe it is not specially injurious to the potato.

The curculio of America, so far as I know, is not known to Europe; but they have also one or two species of "plum-weevils" there that in some respects are even worse than ours; or would be worse, if it was not that a very peculiar feature in their economical habits rendered them self-destructive, thus giving a flat contradiction to the notion of a high degree of animal instinct in them. This insect in Germany is called the *Pflaumenbohrer* or plum-borer, because it, like ours, selects the plum as the receptacle of its eggs and the nourishment of its larva; but under some circumstances it is regarded rather as a benefit to the plum tree than an injury, inasmuch as it performs the very important function of pruning out the superabundant fruit that overloads the trees in particularly favorable seasons. It is the *Rhynchites cupreus* of German authors, and belongs to quite a different genus from the American insect, and also differs widely from it in color and form. We have half a dozen or more species of *Rhynchites* in the United States, but all that are known to me are leaf-eating insects; at least, I have only found them under such circumstances. The European curculio attacks the plum and other fruit in a manner very similar to the American insect that commonly goes by that name; that is, it makes a crescent-shaped incision in the skin of the fruit, and having made an excavation sufficiently deep to receive the egg, it turns round and deposits it in the opening, after which, with its snout or proboscis, it pushes it in

as far as is necessary, and afterwards voids a small quantity of mucilage, by which the aperture is closed up and the egg protected from unfavorable contingencies. From this point their habits differ somewhat, for the European insect, after the egg is deposited, cuts the stem of the fruit quite, or nearly off, thus causing it to fall to the ground a very short time after the egg is deposited. Kollar says the stem is cut about half off before the operation of depositing the egg takes place, and the other half is cut off, or nearly so, afterwards. If the fruit should fall in a situation where it would be exposed to a hot sun, it would be shriveled up, and the larva would perish long before the period destined to accomplish its larvæ development. On the other hand, should the fruit fall on a place where it would be subjected to too much moisture, it would prematurely rot, and thus defeat the parent insect in its object again. From these causes much the larger number of the larvæ perish every year, and such a redundancy of the insect as so often occurs in this country can hardly take place there, or if so, then very rarely. Fruit stung by the American curculio under favorable circumstances may recover, and subsequently ripen, but that which is stnng by the European insect never can; so, that if this insect should, in any manner, become as numerous as ours, it undoubtedly would become more destructive. But as it remains longer in the fruit after it falls upon the ground than ours does, so, also, it affords a better opportunity for the collection of this fallen fruit, and the destruction of the larvæ. On one occasion, in Lancaster, Pa., I picked up about fifty plums from the ground on the 10th of June, and among all of them I could only find two or three of the larvæ of the curculio, the others having all escaped into the ground before that period. Most of these had fallen from the tree only the day and night before I last visited it. This does not always so happen, for I have also often found the larvæ starved to death before its maturity, from the drying up or moulding of the fruit; but under any circumstances it is always saftest to gather the fruit that falls from trees, two or three times a day, or oftener, if no animals are kept under them that eat it as fast as it falls.

Nearly all the remedies that I have referred to in this paper are, to a greater or less extent, useful in the destruction of the curculio, but they should be *persevered* in, in order to make them effectual. I one time had a fine healthy "Valparaiso Squash" Vine in my garden, which was attacked by a colony of "squash bugs," (*Coreus tristis.*) I tried whale-oil-soap, and lime, and pepper, and ashes, and tobacco, and several other things, but still every day, one fine large leaf after another wilted down, as if it had been scalded, from the stings of these disgusting insects, and every thing looked as if they were determiued, and would have matters their own way, until I made a resolve that I *would* conquer them by a determined and persevering manual effort, and at length I succeeded. I crushed the old, the young, and the eggs, *whenever* and *wherever* I could find them, and would have accomplished the work much sooner had my neighbors co-operated; as it was, it appeared to me as if I had killed all the squash-bugs for a whole square around me, for every morning I encountered a new host that was not there the night before. But I succeeded by *perseverance;* and a similar war waged, simultaneously

against the curculio, will also be ultimately successful. The only question of a practical character then is, "Will it pay?" Well, I don't profess to know much on that score. Men who cultivate the different kinds of fruits and vegetables will know best about that. But when I think of the two diminutive plums, apricots, or nectarines, laying on the palm of my hand, and for which I invariably had to pay from five to ten cents during the past summer, I am strongly tempted to come to the conclusion that it *will* pay, and pay well, too. Men whose time and means are devoted to horticulture and fruit-growing for the sake of profit, or a livelihood, ought to make the destruction of the curculio and other insects as much a matter of prime importance as any other feature connected with those occupations, for upon this single contingency their whole success may depend. Different localities, different circumstances and different experiences, may elicit modifications and improvements in the suggestions offered in this paper, and intelligent cultivators may not be long in discovering these.

In conclusion, I may be permitted to say, that I have confined my remarks chiefly to the discussion of a single insect, from the fact of its present prominence in our fruit history, and the additional fact, that it is not only fast becoming *a* bane of fruit-growing in the United States, but *the* bane, and one, too, for which every cottage, villa and mansion, is anxiously looking for an antidote. That antidote I have feebly and imperfectly attempted to give, claiming to have offered nothing *new*, mainly because my chief desire has been to utter only that which appears to be *true*.

PENNSYLVANIA HORTICULTURAL SOCIETY.

Established in Philadelphia in 1827.

This Society, the oldest of its kind in this country, was organized in Philadelphia in pursuance of an advertisement for a public meeting, to be held on the 20th day of November, 1827, the call being signed by James Measc, N. Chapman, George Pepper, John Vaughan, Reuben Haines, Joseph Hopkinson, Charles Chauncey, Horace Binney, William Davidson, and Mathew Carey.

The meeting was held, and Mathew Carey presided as Chairman. A committee was appointed to draft a Constitution and By-Laws, which were adopted on the 21st day of December, 1827, and Horace Binney elected President.

Zaccheus Collins was elected President in 1828, and Joseph R. Ingersoll in 1829, the number of members at this time being 163.

The first schedule of premiums was adopted January 4th, 1830, and the sum offered amounted to $119.

The first annual display was held in the Masonic Hall during the autumn of that year, since which time displays have been held annually, together with monthly competitions for premiums. The aggregate sum expended in this way amounts to over $20,000.

This Society was chartered by the State of Pennsylvania on the 24th of March, 1831, having, since its organization, increased greatly in means and usefulness, by large accessions of members and funds.

George Vaux was elected President this year, with Charles Chauncey, Nicholas Biddle, D. Landreth, Jr., as Vice-Presidents, and C. Pickering as Secretary.

Horace Binney was re-elected President September 5th, 1836, and Gavin Watson, M. D., was elected Recording Secretary.

Thomas P. James was elected Recording Secretary on the 7th of September, 1840, and continued to perform the duties of his office in the most careful and satisfactory manner for nearly nineteen years; and declining a re-election in 1859, Henry Hay was elected his successor.

Horace Binney having declined a re-election, Caleb Cope was elected President on the 6th of September, 1841, and continued to fill the office until September 3d, 1851, having been elected year after year by the unanimous suffrages of the members. Mr. Cope devoted, during the whole of that period, the best energies of a well-stored mind, with a lavish expendi-

ture of means, to carry out the objects of this Society, and it is due to his exertions, more than to any one member, that it owes its present high position of usefulness, as well as the influence it has brought to bear in improving the products of the orchard and garden, and in elevating the taste of the entire community in horticultural pursuits.

General Robert Patterson was next elected President, and after filling the office for several years, and declining a re-election, was succeeded by M. W. Baldwin, who resigned in 1863, when J. E. Mitchell was elected President, and was followed by Fairman Rogers in 1863. J. E. Mitchell was re-elected in 1864, but declining to serve, D. Rodney King was elected, and is now the presiding officer.

One of the main objects of the founders of this Society, and one which has been kept steadily in view by its members, is the establishment of a botanic garden for experimental purposes. As early as the year 1831, a committee was appointed for this purpose, and a subscription opened to secure the necessary funds to purchase a suitable site.

Another committee was appointed in 1843. In 1854 the city authorities were strongly urged to appropriate Lemon Hill (formerly the country seat of Henry Platt) to the uses of this Society for the purposes of a botanic garden and arboretum.

Notwithstanding these failures, the project is still kept in view, and will doubtless be carried out at some future time.

This Society has also been instrumental in introducing many new varieties of fruits and flowers, which, with the large sums expended in premiums, has stimulated and encouraged our fruit and vegetable growers to renewed exertions in their respective departments, the results of which are plainly visible in the superior quality of these articles displayed for sale in our markets.

Another and a very important object has been the acquisition of a suitable library, this Society having now on its shelves a highly valuable collection of books on appropriate subjects, the most of them illustrated with colored plates, and which cost, up to 1859, over $5,000. There were 1200 volumes on the shelves at that time, and accessions have since been made to the number.

The tables are liberally supplied with the principal horticultural periodicals, which are carefully bound when necessary.

This Society is also in the possession, through the liberality of its former President, Caleb Cope, of a valuable set of dies for striking off medals for prizes. A number of these, in gold, silver, and bronze, have been distributed, and are highly prized by the successful holders.

The proceedings of this Society were regularly published, and are now on file up to the year 1854, at which time the burning of the printing office in which they were kept destroyed the unbound portions of them, and a few years afterwards their publication was discontinued. This is much to be regretted, as a vast amount of useful information was thus circulated, which, it is hoped, will be compiled from the written proceedings, and published.

The annual displays have always been an attractive feature in the operations of this Society; and, aside from affording a very pleasant re-union for

its amateur members, they have stimulated the practical men to renewed excellence in their various departments, in order to gain its prizes, whilst the public has always looked forward to these displays as innocent and elevating means of recreation, and, by a liberal patronage, has encouraged the labors of the committee in getting them up.

Previous to the destruction of the museum building, these displays, filling both of its immense saloons, were of the most magnificent character.

They were afterwards held in one of the public squares, under canvass pavillions, and produced a very unique and beautiful effect. It has been estimated that twenty to thirty thousand persons visited these displays, and from fifteen to twenty-five hundred dollars were expended in getting them up.

The income of this Society is derived from the annual contributions of its members, at the rate of three dollars each, and from life memberships, of twenty-five dollars each, together with the interest on its investments, amounting to about twelve thousand dollars.

The last list of members' names published was in 1844, and comprised above eight hundred of our most respectable citizens, together with a considerable number of honorary members, residing in various parts of the world, who were elected for their scientific attainments, and for their devotion to the cause of horticulture.

The number of members is not so large at present, as this Society, in common with others of a similar character, has, of late, felt the depressing influence of the times, but its members will not permit its elevating and refining influences to be lost to the community, but will continue, by encouraging the peaceful pursuits of horticulture, to inculcate and keep alive a love for the beautiful in nature, and a reverence for its Divine Author.

HONORARY MEMBERS.

Arnold, James,
Balfour, Hutton, John,
Bauman, August,
Bauman, Charles,
Bauman, Bernard, Joseph,
Bauman, Napoleon,
Bivort, Alex.,
Bodin, Soulange, Chev.,
Bonsall, E. H.,
Bretonneau, Pierre, M. D.,
Berekmans, Louis Edwin,
Cabot, J. S.,
Corse, Henry,
Cushing, J. P.,
Davis, J. S.,
De Monville, B.,
Don Ramon de la Sagra,
Dow, Virgil M., M. D.,
Downing, Charles,
Drayton, J. G.,
Duke of Devonshire,
Eaton, Levi, C.,
Edwards, Henry, W.,
Este, Daniel, K.,
Feast, John,
Field, Richard, S.,
Gabriel, George,
Gersinger, D. S.,
Grant, C. W., Dr.,
Griffiths, Mary, Mrs.,
Haldeman, Samuel, S.,
Hogg, Thomas,
Huffnagle, Charles,
James, Edwin, Mrs.,
Knox, J.,
Lugenbeel, J. W.,
McMichael, Wm.,
Macondry, F. W.,
Mantel, J. B.,
Markland, George, H.,
Maxwell, John, Jr.,
Mercerون, F. F.,
Milligan, Joseph,
Monson, Alfred, S.,
Newhall, Cheever,
Pappe, Ludwig, M. D.,
Parker, J. W.,
Parmentier, Mrs.,
Pickering, C., M. D.,
Planchon, J. E.,
Powell, John,
Roberts, J. J.,
Ross, John,
Smith, S. H.,
Steele, John, D.,
Thomson, Alex.,
Thompson, J. W.,
Van Houtte, Louis,
Wendell, Herman,
Wetherill, S. R.,
Wilder, M. P.,
Wright, Henry,

CORRESPONDING MEMBERS.

Bivort, Alexandre,
Bretonneau, Pierre, Dr.,
Bryan, Thomas, S.,
Buchanan, Robert,
Berckmans, Edward Louis,
Cocklin, E. H.,
Davis, Benjamin, G., Dr.,
Dawson, John, M. D.,
Don Ramon de la Sagre,
Dow, Virgil M., M., D.,
Downing, Charles,
Evans, E. J.,
Feast, Samuel,
Floy, Michael,
Gabriel, George,
Grider, Rufus, A.,
Haldeman, S. S.,
Harvey, Thomas, M.,
Hildreth, S. P., M. D.,
Johnson, John, C., Dr.
Leroy, Andre,
Link, Frederick Henry,
McGowan, D. J., M. D.,
McNab, James,
Monson, Alfred S., Dr.,
Pappe, Ludwig, M. D.,
Planchon, J. E.,
Powell, John,
Rathvon, S. S.,
Remont, Jules,
Small, George H.,
Van Houtte, Louis,
Wilson, William,

LIFE MEMBERS.

Anderson, Walter M.,
Bache, T. Hewson, M.D.,
Baker, John R.,
Baldwin, M. W.,
Barker, Abraham,
Baxter, J. B.,
Beckett, Henry,
Betts, Richard K.,
Brown, Jeremiah,
Brown, Joseph D.,
Brown, Mary D.,
Buist, Robert,
Burr, W. H.,
Carver, A. B.,
Catherwood, A. J.,
Chambers, A. R.,
Chambers, John,
Claghorn, J. L.,
Claghorn, J. R.,
Clark, E. W.,
Cleveland, W. S.,
Cook, John,
Cope, Alfred,
Cope, Caleb,
Corlies, S. Fisher,
Craig, John G.,
Croft, Thomas J.,
Deacon, George B.,
Dick, John,
Dreer, Ferdinand,
Dreer, Henry A.,
Earl, George W.,
Eastwick, A. M.,
Ellis, Charles,
Evans, Charles,
Evans, Horace, M. D.,
Fergusson, B.,
Fergusson, D.,
Fisher, J Francis,
Fleming, W. P.,
Fobes, Thomas,
Fox, Charles P.,
Graham, N. H.,
Greeves, Thomas,
Haddock, Daniel, Jr.,
Hallowell, M. L.,
Harmar, Charles,
Harris, Edmund,
Harrison, Joseph,
Harvey, Alex. A.,
Hayes, Charles P.,
Hazeltine, John,
Heberton, G Craig,
Herring, C., M. D.,
Horstman, S H.,
Horstman, W. J.,
Horton, John,
Howell, Arthur,
Hutchinson, B. P.,
James, Thomas P.,
Jeanes, Joshua,
Jenks, Barton H.,
Johnson, Henry N.,
Jones, A. M.,
Jones, Caleb,
Jones, James,
Jones, W. Firth,
Jordan, John, Jr.,
Kilvington, Robert,
Kuhn, Hartman,

Laing, Alve. E.,
Laing, Henry, M. D.,
Lambert, John,
Lea, Thomas,
Lenning, Charles,
Little, A. W.,
McEuen, Thomas, M. D.,
McIntosh, John,
Magee, George W.,
Magee, Michael,
Marshall, R. M.,
Mason, Samuel,
Mellor, Thomas,
Mitchell, B. A.,
Mitchell, J. E.,
Morris, Israel,
Morris, Wistar,
Neff, R. K.,
Nichols, William,
Noble, S. W.,
Ogden, J. M.,
Patterson, Robert,
Pepper, L. S.,
Price, Joseph,
Priee, S. S.,
Price. Joshua L.,
Remington, T. P.,
Rice, John,
Ritehie, James,
Ritter, Abraham,
Satterthwait, Edwin,
Sehaffer, Charles, M. D.,
Scott, R. R.,
Scull, H. W., Mrs.,
Seybert, Henry,
Shannon, Ellwood,
Sharpless, C. L.,
Sharpless, H. G.,
Sharpless, S. J.,
Simmons, E. S.,
Sherwood, John,
Sinton, William,
Smith, G. Roberts,
Smith, Thomas,
Snowden, Edward,
Spangler, C. E.,
Stuart, George H.,
Sutherland, C. E.,
Thomas, G. G.,
Thomas, John,
Thomas, Joseph T.,
Traquair, James,
Tryon, E. K.,
Vaux, George,
Vaux, W. S.,
Walker, Samuel J.,
Ward, W. L.,
Warnoek, William,
Wayne, W. H.,
Welling, C. H.,
Welsh, John, Jr.,
Welsh, Samuel,
Welsh, William,
Wiekersham, M. L.,
Wilson, O. H.,
Wilson, Rathmell,
Wister, Charles J.,
Wood, Richard D.

ANNUAL MEMBERS.

Abbot, Chas. H.,
Anspach, John,
Abbot, James,
Andrews, Thos. A.,
Astley, James,
Binney, Horace,
Brown, Moses,
Brown, D. S.,
Bowen, W. E.,
Burgin, G. H., M. D.,
Blanchard, H. B.,
Booth, Jas. C., Prof.,
Blanchard, T. A.,
Barker, Abraham,
Bates, J. W.,
Barton, J. Rhea,
Blight, George,
Baird, Matthew,
Brown, Alex.
Baird, John
Baker, W. C.
Biddle, Craig,
Brooke, Stephen H.
Bright, Wm.,
Bispham, S. A.,
Berry, John,
Buck, Chas.,
Bunting, Philip S.,
Brown, W. S.,
Buckner, A. J.,
Brown, Thomas D.,
Braidwood, T. W.,
Barton, Isaac,
Barker, John G.,
Brooks, John,
Bond, L. Montgomery,
Bohlen, John,
Blodgett, Lorin P.,
Bolleger, R.,
Brinckloe, W. G. P.,
Burk, Jessie,
Bauman, Louis C.,
Browning, Edward,
Burnham, Geo.,
Borden, S. C.
Burton, John,
Brown, James,
Black, John A.
Barker, A.,
Bayard, C. P.
Boyd, W. S.,
Ballentine, W. S.,
Bradford, Mrs. Mary H.
Burt, Mr.,
Bailey, Walter,
Blakiston, H. R.,
Brooks, S. S.,
Baker, T. W.,
Brown, Wash.,
Biddle, Mrs. George,
Biddle Miss Annie,
Bruner, H. B.
Burt, Nathaniel,
Crean, William,
Craig, Theo. H.,
Claghorn, J. W.,
Collady, Samuel R.,
Conrad, John,
Chaplain, W. J.,
Craige, A. C.,
Cassin, John,
Chandler, Joseph R.,

Cresson, C. C.,
Caner, W. J.,
Cornelius, Robert,
Chase, Pliny E.,
Chamberlain, Lloyd,
Churchman, John,
Coleman, G. Dawson,
Cook, Fleming,
Cook, John,
Crans, Peter,
Cope, Francis R.,
Cummins, Daniel B.,
Caldwell, James E.,
Camac, W., Dr.,
Clark, Clarence H.,
Crucknell, Charles,
Cauffman, T. F.,
Crowson, Joseph,
Comegys, B. B.,
Channon, J. C.,
Colder, Rev. James,
Dryburgh, Andrew,
Dawson, M. L.,
Dickson, James N.,
Devereux, James,
Davis, John C.,
Denckla, A. H.,
Davies, Charles E.,
Daniels, James,
Davis, Edward M.,
Duhring, Caspar H.,
Davenport, James,
Darrah, James, M. D.,
Duhring, Henry,
Ellis, William,
English, Edward,
Evans, Thomas,
Egner, Jacob H.,
Eastwick, E. P.,
Ellwyn, Dr. A. L.,
Eckfelt, J. R.,
Eshleman, Dr. Isaac,,
Eadie, James,
Ebert, Stephen,
Eastwick, Philip,
Ennis, Prof. Jacob,
Edwards, John H.,
Edwards, W. L.,
Elkinton, L. M.,.
Ellwell, John,
Elder, Walter,
Emery, Charles,
Ewing, W. C.,
Fraley, Frederick,
Felton, A. L.,
Fahnestock, G. W.,
Freas, Philip R.,
Fawcett, Hiram B.,
Fletcher, Thomas,
Ford, John M.,
Forney, John W.,
Firth, Thomas T.,
Felton, Anthony,
Fairbrother, John,
Fitts, R. B.,
Fricke, Henry,
Fletcher, Charles E.,
Fisher, Coleman,
Fox, Charles,
Farnum, John,
Grambo, Henry,
Grassie, William,
Graff, Frederick,
Gray, John,
Goodman, A. T.,
Gurney, John,
Gœhring, John A.,
Gibson, Henry C.,
Garrigues, Elizabeth B.,
Graham, Hugh,
Griffiths, Charles M., M. D.,
Garrigues, Thomas,
Gates, Jabez,
Hacker, Jeremiah,
Harris, Dr. R. P.,
Hart, W. H.,
Hobson, William,
Haines, Lindley,
Hagner, C. V.,
Hamilton, John,
Houghton, Dr., J. S.,
Harrison, James H.,
Hoffman, C. J.,
Harkness, W. W.,

Hay, Henry,
Hacker, Morris,
Hubermehl, J. Jacob,
Helmuth, Charles,
Hopkins, Edward,
Hay, Henry P.,
Hafflefinger, Charles,
Hibbert, Edward R.,
Harrison, A. W.,
Hollingshead, Joseph M.,
Harvey, James,
Harris, Mrs. E.,
Haines, John S.,
Hacker, William,
Hauber, Gottleib,
Herrise, Remi,
Hubbel, O. S.,
Harrison, Henry C. Mrs.,
Hunt, William, Dr.,
Hutchinson, M. P., Dr.,
Hinchman, John,
Haywood, William P.,
Hoopes, Josiah,
Harris, R. P., Dr.,
Herstine, D. W.,
Horner, Benjamin,
Hunter, W., Jr.,
Howell, Joseph,
Huster, George,
Huster, Gebhart,
Hazard, A. F.,
Johnson, Norton,
Joyce, William,
Jack, Louis, Dr.,
Jenks, A. S.,
Jones, Nathan,
Johnson, Conrad K.,
Jordan, P. A.,
Jewell, Anson,
Jewell, Leonard,
Jones, B. W.,
Justice, P. S.,
Joyce, John,
King, D. Rodney,
Kinnear, John,
Kent, Rudolphus,
Kelly, W. D., Hon.,
Kent, W. C.,
Kelley, Henry H.,
Kent, Samuel C.,
King, Dr. Charles R.
Keim, J. R.,
Kelly, Michael,
Kilgore, D. Y.,
Longstreth, Joshua.
Landreth, David,
Levy, L. J.,
Lovering, Joseph S.,
Lang, George S.,
Landreth, Oliver,
Locke, Z.,
Lejee, Wm. R.,
Leedom, Benjamin J.,
Lazenby, George,
Lawrence, Mrs. John,
Leize, A.,
Lewis, Samuel, Dr.,
Landers, John,
Lewis, Charles, S.
Lewis, Joseph, W.,
Lewis, Henry,
Lewis, Walter, H.,
Longshore, Thomas, E.,
Longstreth, Helen, Miss,
Longstreth, Sidney, Miss,
Lippincott, Selina,
Leonard, Samuel,
Levy, John, P.,
Le Boutillier, Charles,
Lea, Henry, C.,
Leeds, Nathan,
Lennig, Joseph,
Mackenzie, Peter,
McCall, Peter,
McAllister, John,
Myers, Thomas, A.,
Megarge, Charles,
Morton, S. C.,
Moore, John, W.,
Miller, Joseph, W.,
Meehan, Thomas,
Morris, Isaac, P.,
Morris, Paschal,
Miller, Robert,

Markley, Edward C.,
McCammon, D. C.,
Metcalff, Franc,
Miller, Charles,
Martien, W. Thompson,
Moss, J. L.,
Moss, E. L.,
Moore, W. H.,
Murphy Michael,
Mack, Christian,
Myers, Thomas, J.,
Moss, Alfred, A.,
Mathews, Richard,
Montgomery, Richard, R.,
McLaughlin, John,
Muzzey, W. M.,
Matheson, James,
Maguire, Edward,
Markley, E. C.,
Miller, C. H.,
Mackenzie, Thomas, J.,
Meghran, Thomas, J.,
McGowan, John,
McKiege, Daniel,
McManus, C. B. Mrs.,
Merrick, J. V.,
McMurtrie, R, C.,
Morris, Isaac S.,
Moss, Lucy, B. Miss,
Morris, George, C.,
McMurray, Joseph, Jr.,
McQueen, Donald,
Musser, Wm.,
Marshall, Benjamin,
MacKellar, Thomas,
Mason, C. H.,
Mills, Michael,
Mitchell, W. A.,
Mehon, Martin,
Marsh, Benjamin, V.,
McKean, H. P.,
Merrick, S. V.,
McCallum, Donald,
Morgan, T. M.,
Megargee, S. J.,
Maag, Adam,
McDonald, James,
MacFerran, Samuel,
Newbold, James, S.,
North, G. W.,
Needles, Joseph A.,
Nelson, David,
Norman, Edwin,
Norton, C. F.,
Norris, Richard,
Newman, John, B.,
O'Neill, Thomas,
O'Keefe, F.,
O'Hara, James,
O'Neill, Owen,
O'Neil, Eugene,

Percival, Miss,
Percival, Thomas, C.,
Pearsall, Robert,
Phillips, H. M.,
Pollock, John,
Parker, E. L.,
Paul, David,
Poalt, E. L.,
Rrice, Isaac, C.,
Price, P. M.,
Parry, Wm.,
Penn, George,
Pratt, Thomas,
Perrine, Lewis,
Perry, Joseph,
Powell, Isaac, Jr.,
Purdon, Wm ,
Pepper, G S., M. D.,
Phillips, S. R.,
Pollock, Wm.,
Pennock, A. L.,
Platt, Charles,
Potter, W. H.,
Patterson, Joseph,
Powell, A. H.,
Platt, C. T.,
Quinn, Louis, J.,
Robertson, D.,
Rubincame, C. E.,
Rowland, H. M. Mrs.,
Roberts, Edward,
Raabe, Peter,
Robins, Thomas,
Rumsey, John,
Rogers, Evans,
Ridgeway, Thomas,
Rhodes, James, Prof.
Randall, S. J ,
Randolph Evan,
Rutter, Robert, L.,
Robertson, Thomas,
Ruth, Adam,
Rogers, Fairman,
Rogers. C. H.,
Rosengarten, H. B.,
Randolph E. S. Mrs.,
Roberts, Percival,
Riley, George F.,
Ruddoch, W. H.,
Rutherford, John,
Reeves, Mark,
Starr, Isaac,
Smith, N. A.,
Smith, John, J., Jr.,
Schmitz, Gerhard,
Sheeks, Godfrey,
Siter, C. M.,
Scott, Robert,
Schaffer, W. L.,
Sheets, Christian,
Sexton, J. W.,

Stone, James, N.,
Sheaff, John T.,
Sidney, J. C.,
Struthers, Wm.,
Serrill, Henry,
Stewart, W. S.,
Stone, John,
Southwood, Wm.,
Sparks, Thomas,
Smyth, James,
Syng, Philip,
Schively, G. S., M. D.,
Spooner, C. H.,
Sutherland, Wm.,
Sellers, Mrs. Mary,
Smith, Joseph S.,
Stœver, J. F.,
Stone, H. M.,
Savery, J. C.,
Stiles, W. C., Jr.,
Simons, Samuel,
Stewart, James, W.,
Steffe, Wm.,
Spencer, Charles,
Shoemaker, Franklin,
Snyder, A. F.,
Salisbury, Robert,
Shuster, Wm.,
Shimer, A. P.,
Serrill, J. S.,
Snyder, Daniel U.,
Sellers, C. B.,
Satterthwait, W. H.,
Smith, J. Somers,
Searle, Thomas, R.,
Tiller, Samuel,
Tucker, John,
Tiller, Wm.,
Trotter, C. W.,
Tripler, Thomas, C.,
Taggart, W. H. Dr.,
Taylor, H. P.,
Taws, Lewis,
Trotter, E. H.
Trotter, W. H.,
Thompson, John, J.,
Thompson, Thomas,
Taylor, John D.,
Thomas S. Hanley,
Thornley, John,
Thomas, G. C.
Uber, Henry,
Vansant, A. L.,
Vandusen, Wm.,
Wetherill, Wm.,
Williams, John,
Whitman, C. A.
Wurts, C. S., Jr.,
Warner, Redwood, L.,
Wood, G. A.,
White, Thomas,
Whetham, James, D.,
Wilson, J. W.,
Wilstack, W. P.,
Warner, R. F.,
Whitney, John, R.,
Wetherill, C.,
White, D. W.,
Wright, Richard,
Waterman, J. S.,
Wilson, F. S.,
Wright, James A.,
Williamson, Passmore,
Witmer, W. H., Dr.,
Woodward, T. J.,
Willits, C. L.,
Watson, R. J.,
Wood, Richard, Jr.,
Wright, E. N.,
Woolverton, John,
Wagner, John,
Wagner, James, D.,
Williams, George,
Watson, John, M. D.,
Welsh, Samuel, Jr.,
Wunderlich, George,
Walter, Thomas, U.,
Williams, T. S., M. D.,
Williams, W.,
Winfield, Charles,
Wood, Horatio, C.,
Welsh, Harry, D.,
Whitman, E. G.,
Whitall, J. G.,
Wilkinson, Clement,
Wyatt, Elijah,
Wilson, Francis,
Young, W. J.,
Yeakel, Wm. M.,
Zeilin, J. K.,

SPECIAL COMMITTEE ON NEW HALL.

At the Stated Meeting of the Pennsylvania Horticultural Society, held on the 17th of January, 1865, the following Resolution was passed:

Resolved, That a Committee of twenty-five members, with power to increase its number, be appointed by the President, of which the President of this Society shall be the Chairman, to raise a fund, by subscription, for procuring a lot in a central locality, and erecting thereon a suitable Hall for the use of this Society; and if said Committee meet with the desired success in subscriptions, they shall also ascertain and report the locality, price and terms of lot and estimated cost of erecting the building, at a subsequent meeting of this Society, or a Special Meeting called for that purpose.

The following Committee was appointed:

D. RODNEY KING, Chairman.

M. W. Baldwin,
Caleb Cope,
Gen. R. Patterson,
J. E. Mitchell,
Fairman Rogers,
S. S. Price,
Charles P. Hayes,
Thomas P. James,
W. L. Schaffer,
Robert Buist,
R. M. Marshall,
Henry A. Dreer,
A. W. Harrison,
James Ritchie,
Peter Mackenzie,
Charles Harmar,
Robert Cornelius,
G. H. Burgin, M.D.,
Thomas C. Percival,
Thomas Meehan,
John Lambert,
Samuel J. Sharpless,
James L. Claghorn,
G. W. Earl.

LOCAL COMMITTEES.

For Germantown.
J. E. Mitchell,
Thomas Meehan,
P. R. Freas,
John McGowan,
J. V. Merrick,

For West Philadelphia.
H. A. Dreer,
R. Buist,
R. Kilvington,
C. Harmar,
G. W. North.

LIST OF ESSAYS AND ESSAYISTS FOR 1866.

January—Diseases of Vegetable Life. By a "Member of the Pennsylvania Horticultural Society."

February—Diseases of the Pear. By Thomas Meehan.

March—Ornamental Planting of Grounds. By Charles H. Miller.

April—Growing Specimen Plants. By Charles Crucknell.

May—Foliage Plants for Decorative Planting. By Edw. S. Rand, Jr.

June—Philosophy of Pruning. By Dr. John A. Warder.

July—Roses and Rose-culture. By John Saul.

August—New Jersey Fruits. By William Parry.

September—Flowers of the Field. By Dr. Louis Jack.

October—Vegetable Physiology. "Modern Theories." By Peter B. Mead.

November—History of the Grape, and Grape-culture. By A. S. Fuller.

December—Garden Farming. By E. Satterthwait.

THE

PENNSYLVANIA HORTICULTURAL SOCIETY.

Officers and Standing Committees for the Year 1866.

D. RODNEY KING, President.

CALEB COPE,
M. W. BALDWIN,
ROBERT BUIST,
CHAS. HARMAR,
} Vice-Presidents.

THOMAS MEEHAN, Corresponding Secretary.

A. W. HARRISON, Recording Secretary.

HENRY A. DREER, Treasurer.

THOMAS P. JAMES, Professor of Botany.

JAMES C. BOOTH, Professor of Horticultural Chemistry.

S. S. RATHVON, Professor of Entomology.

Finance.
W. L. Schaffer,
T. P. James,
R. M. Marshall.

Library.
T. P. James,
A. W. Harrison,
R. Kilvington,
Thomas Evans,
J. D. Wagner.

Establishing Premiums.
Fairman Rogers,
George W. Earl,
J. E. Mitchell,
Charles Harmar,
R. Kilvington.

Plants and Flowers.
George W. Earl,
James Ritchie,
Thomas J. Mackenzie,
R. Scott,
Charles H. Miller.

Fruits.
J. E. Mitchell,
S. W. Noble,
W. L. Schaffer,
E. Satterthwait,
W. Hacker.

Vegetables.
C. Harmar,
I. C. Price,
J. McGowan,
C. P. Hayes,
Coleman Fisher.

Establishing Names of Fruits.
R. Buist,
Thomas Meehan,
W. Parry,
S. W. Noble,
W. Hacker.

Publication.
A. W. Harrison,
H. A. Dreer,
T. Meehan.

Distribution of Seeds.
J. McGowan,
T. Evans,
E. R. Hibbert.

Botany.
T. P. James,
R. Kilvington,
T. Meehan,
J. Darrach, M.D.,
J. Sherwood.

Horticultural Chemistry.
J. C. Booth,
Fairman Rogers,
G. H. Burgin, M.D.,
G. W. Fahnestock,
Charles Ellis.

Entomology.
S. S. Rathvon,
William Saunders,
John Cassin,
C. C. Cresson,
William Hobson.